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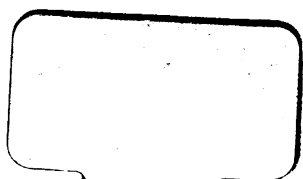
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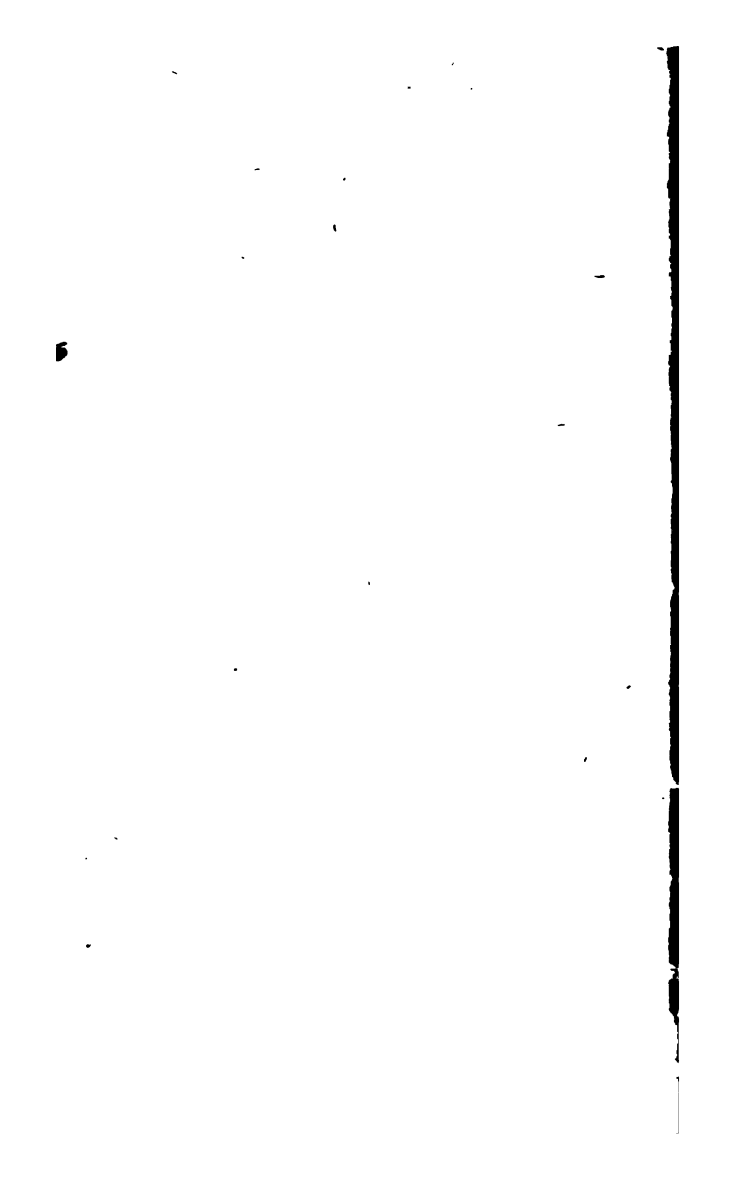
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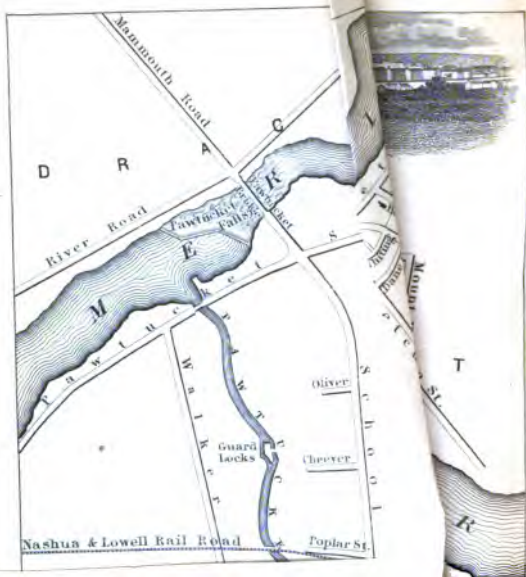
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LOWELL, 2 c8

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AS IT WAS, AND AS IT IS.

BY

REV. HENRY A. MILES,

"Art is the handmaid of human good."

SECOND EDITION.

LOWELL:
NATHANIEL L. DAYTON.
MERRILL & HEYWOOD.

1846.

Entered according to Act of Congress, in the year 1845,

By HENRY A. MILES,

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PREFACE.

THE unexampled growth of the city of Lowell gives interest to some notice of the successive steps by which it has attained to its present importance, of the extent of its manufacturing operations, and of the actual condition of its industrious population. An unsettled territory of pasture and meadow has, within the memory of the middle-aged, been covered with substantial edifices, mills, stores, churches, blocks of houses, the prosperous homes of nearly thirty thousand people; thus almost realizing the creations of some oriental fable, at least emulating in a few years what, in other places, has been the slow growth of centuries.

From the size of this book the reader will not expect any thing more than what the brief time allowed the author permitted him to prepare—a work which, without the minuteness of a history, will yet supply the information which all visitors to this city wish to obtain. To the citizens and operatives of Lowell, likewise, it is hoped that this book will not be without value. Following a rapid sketch of the growth of this place, there will be found a variety of statistical facts, collected from the Agents, the Overseers, the Operatives, and the Matrons of the boarding-houses. On this portion of the book much the most care has been bestowed. The great questions relating to Lowell are those which concern the health and character of its laboring classes. It is believed that more full and precise information on these points is given in the following pages, than has ever before been published. The object constantly kept in

view has been, not the statement of opinions and impressions, but that careful presentation of facts which will enable a stranger to judge for himself.

It is singular that a place, not yet twenty-five years old, should already have fabulous stories mingled with its history. Yet such is the case. The accounts which have been published of the chance discovery of the water-power at Pawtucket Falls by a sportsman, and of the report of an engineer, subsequently made, that there was no water-power here, are wholly without foundation. Great pains have been taken to arrive at an exact knowledge of the facts respecting the origin of Lowell, and it is known that they are correctly stated in this book.

In the preparation of the following pages, important assistance has been received from Patrick T. Jackson, Esq., from Dr. E. Hobbs, of Waltham, from the Agents of the Corporations in this city,

and from other sources indicated in the course of the work. Independent of the gratification of a natural curiosity respecting the rise and progress of one of the greatest enterprises of the age, the present publication will answer a more palpably useful purpose, if it shall recommend, to other manufacturing towns and cities, that well devised system, and careful moral *régime*, which have here been established.

LOWELL, 1845.

LOWELL,

AS IT WAS, AND AS IT IS.

INDIAN HISTORY.

THE place where the waters of the Merrimack and Concord rivers meet, had a greater relative importance two hundred years ago, than at any subsequent time, prior to the introduction of cotton manufactures. It was the head quarters of one of the five great tribes of Indians which were found in New England. The Sachemship of the Pawtuckets extended to the north and northeast of Massachusetts Bay, including all of the territory which is now the State of New Hampshire. This was

inhabited by a tribe numbering twelve thousand souls; and Wamesit, their "capital," was at the confluence of the above named rivers.

This spot was dear to the natives on account of its supply of fish. Salmon, shad, alewives, and sturgeon, were easily taken in vast quantities; and the abundance of the latter fish gave the name "Merrimack" to the river so called; the meaning of that word being "sturgeon," in the Indian tongue.

Here, as early as 1653, John Eliot, the celebrated "Apostle to the Indians," came, spending many days, and preaching to the natives. Here courts were held annually, in the month of May, by an English magistrate, assisted by some Indian chiefs. They arbitrated upon all questions in dispute between the Indians and the white settlers, who, in the year above named, laid out the plantation of Chelmsford. The first court in Middlesex County was held on land through which the

Boott Canal now passes; and tradition says, that the log church, where Eliot used to preach, stood on the height of land on Appleton Street.

But here, as in other places, the native sons of the forest passed away rapidly before the advancing civilization of the English colonists. From a population of three thousand souls, which it numbered when first discovered by the white settlers, Wamesit was reduced by 1674 to only two hundred and fifty men, besides women and children. These held, as their exclusive possession, the identical soil which is now the territory of Lowell. The bounds of the old Indian "capital," and of the present city, singularly coincide. A ditch, running in a semicircular line, striking the Merrimack River a little above the Pawtucket Falls, and again about a mile below the mouth of the Concord River, and embracing twenty-five hundred acres, was, with

the Merrimack River itself, the ancient boundary of Wamesit. This varies but inconsiderably from the line and extent of Lowell. This Indian ditch, probably thrown up in 1665, is distinctly traceable to this day.

Ere long the natives wholly disappeared. Their lands west of the Concord River were given up in 1686, and in 1726 their right to the land east of that river became extinct. The only memorials they have left here, are the names of our river and waterfalls, the ditch above noticed, and some excavated implements of their rude workmanship. East Chelmsford, or Chelmsford Neck, as this place was called, lost all its former consequence. Situated at the corners of other towns, it contained nothing but a few farm-houses, a tavern, and store. Its fishing privileges still possessed great value. At certain seasons of the year the mouth of the Concord River appeared to be almost literally full of fish. There are

those now living, who have seen one thousand shad taken at one haul, from a basin of water since filled up, and now the site of the large Mill of the Middlesex Company. Down as late as 1820, there were caught, mostly at this spot and at the foot of Pawtucket Falls, twenty-five hundred barrels of salmon, shad and alewives, besides many other fish of less value.

FIRST CANAL

Ever since the settlement of the country, much rafting business has been done on the Merrimack River. Its shores were covered with a forest, which furnished timber, lumber and fuel, and it soon became an important object to float this down to Newburyport, either for shipbuilding there, or for transportation to other places. The chief difficulty

attending this, was the passage of the Pawtucket Falls. Here was a descent of thirty-two feet — not perpendicular, but over several rapids, in circuitous channels, with a violent current, and amidst sharp-pointed rocks. To accomplish this descent with rafts was dangerous when the river was swollen, and was laborious when the river was low ; and this fact suggested the plan of a canal round the falls, by which the descent might be easily made. Accordingly an act was passed, June 27, 1792, incorporating Dudley Atkins Tyng, William Coombs, Joseph Tyler, Nicholas Johnson, and Joshua Carter, and such others as might join them, into “a body politic and corporate forever, by the name of the Proprietors of Locks and Canals on Merrimack River,” with the usual powers granted to canal companies.

They soon commenced operations. They laid out the course of a canal from a point

on the southern shore of Merrimack River, just above the falls, and passing round them at a sweep of about a mile in distance, entered the Concord River, a few rods above its junction with the Merrimack. The canal was one mile and a half in length, and four locks accomplished the descent of thirty-two feet. The whole expenditure was fifty thousand dollars. The first boat passed through the canal in 1797. An incident which then occurred is well remembered by many now living. This being the first canal that was built in this country, hundreds of both sexes and of all ages had assembled to witness the passage of the first boat. They stood around and upon the first lock; and as soon as the boat, containing the directors and invited gentlemen, had entered the lock, its sides suddenly gave way. Spectators and voyagers both were submerged, and were carried with great violence down the stream. Fortunately

no life was lost. This inauspicious beginning was attended with consequences no more serious than an unexpected bath, and a great fright.

The stock of this canal was divided into five hundred shares, the owners of which were scattered throughout Middlesex and Essex counties. It proved to be poor property. Its value was greatly diminished by the bolder enterprise of the Middlesex Canal, connecting the Merrimack River, above the falls, with Boston Harbor. This was undertaken in 1793, and completed in 1804. Much of the lumber, which would otherwise have gone to Newburyport, was taken directly to Boston. Hence the shares of the Locks and Canals Company were easily obtained, at less than their par value, when it was proposed to use the waters of the canal for manufacturing purposes.

EAST CHELMSFORD.

Here, then, was a water privilege created without any great expense for dams, without any danger from freshets, at a place already connected with Boston by a canal, on a tract of land which favored the extensive use of the water, and as the whole current of the Merrimack River could be diverted into the canal, the available power was immense. Still it does not appear that for twenty-three years the idea of this use of the water occurred to any one. Some humble attempts at manufactures were here made, under the auspices of individual enterprise, and chiefly by the use of the waters of the Concord River; and these we must briefly notice, before we speak of the extensive operations of capitalists, acting with corporate powers.

The interrupted commerce and high prices

which attended the last war with England, turned the attention of monied men, in various parts of this country, to manufactures. In 1813, Captain Phineas Whiting, and Colonel Josiah Fletcher, erected a wooden building for the manufacture of cotton. It stood just above the spot where the canal entered Concord River, and this river supplied the power to operate its machinery. It was but a humble parent of the substantial and spacious edifices that have succeeded it, being sixty feet long and fifty feet wide, and costing but twenty-five hundred dollars.

In 1818, the above named gentlemen sold their factory to Mr. Thomas Hurd, an enterprising gentleman, of Charlestown, who fitted it up for the manufacture of wool. He employed in all about twenty persons, introduced into his mill sixteen looms, and turned out one hundred and twenty yards of satinet per day.

In the same year, Mr. Moses Hale introduced the manufacture of gunpowder. His works, also, were on the Concord River, about a mile above its mouth. The next year his operations were extended, and Mr. William Tileston, of Boston, and Mr. Oliver M. Whipple, were received into partnership. About eighty thousand pounds of powder were manufactured per year.

Three years before this a saw and grist mill was erected at Pawtucket Falls, and another still on the canal of the Locks and Canals Company.

Such was East Chelmsford in 1820. A few scattered farm-houses, standing, however, on good soil, and occupied by intelligent and substantial families, the store, the tavern, the humble wooden factory, the few small buildings for the powder-works, the two grist-mills — this was nearly all that the place possessed. The head of the canal had some promise of

becoming a flourishing village. There was the house of Captain Phineas Whiting; that long occupied by the Hon. Asahel Stearns, before his appointment to the professorship of Law in Harvard University, and subsequently by Nathaniel Wright, Esq., who succeeded him in professional practice; the dwelling, also, of Mr. James Bowers; and the houses of Messrs. John and Elisha Ford. But business soon centred below, and that part of the town has changed but little. On the east shore of the Concord River, in the town of Tewksbury, but within the limits of what is now Lowell, there was a small flannel-mill, owned and run by Mr. Winthrop Howe; and there also was the mansion house of Judge Edward S. L. Livermore, the pleasant views from which, and its agreeable hospitalities, are among the reminiscences of what this neighborhood was twenty-five years ago. But the time had now come for a series of changes to begin, which,

in the compass of a few years, have wrought out astonishing results. Associated power took up the work which individual enterprise had feebly attempted, and in this was the origin of Lowell.

WALTHAM, THE PARENT OF LOWELL.

The war of 1812, as before remarked, gave encouragement to the cotton manufacture in this country. A company of gentlemen, residing principally in Boston, commenced, in 1814, the erection of factories in Waltham. With a capital stock of six hundred thousand dollars, they made purchases of land and mill privileges on Charles River, erected three brick manufactories, and supplied them with machinery, comprising eight thousand and sixty-four spindles, and two hundred and thirty-one looms. Here they employed about

four hundred persons, mostly females, working up seven hundred thousand pounds of cotton, and making two million yards of cloth per year.

This undertaking proved highly successful. Here was a demonstration that this kind of business was practicable and gainful; and it attracted the attention of men of enterprise and wealth. Here also was originated and matured that plan of carrying on the manufacturing business, which should properly be called the "Waltham System." This system will hereafter be minutely described. It was transferred to Lowell, which thus had the benefit of the experiments and results of the elder place. Nor is this the extent of the obligations which Lowell owes to Waltham. Her first machinery was made there, and from there also came some of her ablest and most scientific manufacturers, with many skilful and faithful overseers and laborers.

In 1820, Mr. Paul Moody had charge of

the Waltham Mills, and a friend of his, Mr. Ezra Worthen, a former partner in business, was connected with the manufacturing establishment at Amesbury. From his childhood Mr. Worthen had been acquainted with the neighborhood of the Pawtucket Falls; and when the profitableness of the manufacturing business led to inquiries for water power, the immense advantages which this place held out soon struck his eye. While on a visit to Waltham, he expressed a wish to Mr. Patrick T. Jackson, one of the principal Directors of the company there, that they would set up works in some new place, and give him employment in conducting them. Mr. Jackson replied, that they would willingly do this, if he would find a good water power. Immediately Mr. Worthen named the Pawtucket Falls; and with a piece of chalk drew a map of the river and canal on the floor. The rude sketch was sufficient to give Mr. Jackson

a favorable impression, who requested Mr. Moody to visit, with Mr. Worthen, the place which the latter gentleman had described. It was not long before they explored this whole neighborhood, tracing the course of the canal, surveying the adjoining land and shores, and satisfying themselves that the place afforded great facilities for building up a large manufacturing town. Soon after the reception of their highly favorable report, the Directors of the Waltham Company resolved to procure this eligible site.

PURCHASE OF THE CANAL AND FARMS.

Thomas M. Clark, a merchant of Newburyport, and one of the Directors of the canal round Pawtucket Falls, was taken into the confidence of the gentlemen connected with the Waltham Company, and was by them em-

ployed to purchase the shares of the Locks and Canals Corporation. These shares, five hundred in number, were bought at prices varying from eighty to one hundred dollars per share. In the autumn of 1821, Mr. Clark came to East Chelmsford to purchase the farms on which the city of Lowell is now built. The first purchase that was made was the farm of Nathan Tyler—a tract of land lying between Merrimack Street on the north, the Pawtucket Canal on the south, the Merrimack Canal on the west, and coming down to the junction of the rivers, where the Massachusetts Mills now stand. Here was a territory of forty acres, for which, including sixty acres of outlands in Tewksbury, the sum of eight thousand dollars was given. The farm of Josiah Fletcher, lying between Merrimack Street and Merrimack River, and next above the farm of Nathan Tyler, was then purchased, containing sixty acres, for which about the

same sum was paid. Next above this, and bordering on Merrimack River, was the Cheever farm, the old homestead of which is still standing a short distance above the Lawrence Corporation. This farm contained one hundred and ten acres, nine undivided tenths of which were bought for one thousand eight hundred dollars. The owner of the other one tenth had agreed to convey it for two hundred dollars; but dying suddenly insolvent, it was sold by order of the court, the Locks and Canals Company giving, for seven and a half tenths thereof, upwards of three thousand dollars. The remaining two and a half tenths were bought a year afterwards for nearly five thousand dollars — so rapidly did the value of land rise. In 1822 the farm of the widow of Joseph Warren was purchased, a tract of land of about thirty acres, lying between Central Street and Concord River, with the Pawtucket Canal on the north, and extending up nearly

as far as Richmond's Mills on the south. For this the sum of five thousand dollars was paid. Within these boundaries Mr. Thomas Hurd owned two or three acres of land in the near neighborhood of his Woollen Mill, which was situated where the Mechanics' Mills now stand. The farm of Mr. Joseph Fletcher, the homestead of which still stands on the high land in the rear of the upper part of Appleton Street, came down to the Pawtucket Canal on the north, and Central Street on the east, and contained about one hundred acres. This was not purchased until 1824, for which the sum of ten thousand dollars was paid.

Here then was nearly four hundred acres bought at prices averaging not far from one hundred dollars per acre. Thus was possession obtained both of the Pawtucket Canal, and of the territory on which the densely settled part of Lowell now stands, and the cost of the whole was about one hundred thousand dollars.

COMMENCEMENT OF OPERATIONS.

On the sixth day of February, 1822, the purchasers of the above named property were incorporated as the 'Merrimack Manufacturing Company.' Vigorous measures were adopted in the following spring to enlarge the Pawtucket Canal, a step of primary importance, in order to admit a larger body of water. Five hundred men were constantly employed. The canal was made sixty feet wide, and capable of bearing a current of water eight feet deep. This was not completed until the latter part of the summer of 1823, and the expenditure was nearly one hundred and twenty thousand dollars.

Meanwhile a lateral canal—the Merrimack—was dug from the Pawtucket Canal to the Merrimack River. It was on the banks of this river that the Merrimack Manufacturing

Company commenced the erection of mills. Mr. Ezra Worthen was appointed Superintendent of this company's works. He came here in the spring of 1822. The foundation of the first mill was laid in that year, and the first return of cloth was in November, 1823. It was from Mr. Worthen, as before remarked, that the first suggestion came to establish manufactures in this place. He was invited to carry his suggestion into execution. He barely lived long enough to see a great promise in his fruitful idea. He died June 18, 1824. A man of much manufacturing experience, and of great mechanical talent, his loss in the infancy of the enterprize was deeply felt.

REORGANIZATION.

It soon became apparent that here were mill privileges enough for several independent manufacturing companies. It was then deemed expedient that one company should have charge of the disposal and sale of the land and water-power, and of the furnishing of machinery, without entering itself into the manufacture of cotton. The old charter of 1792 was sufficient for this arrangement, with an amendment enacted by the legislature in January 1825. By this amendment the Proprietors of the Locks and Canals Company were authorized to purchase and hold all, or any part, of the real estate held by the Merrimack Manufacturing Company ; to purchase and hold any other real estate in the towns of Chelmsford, Dracut, and Tewksbury, not exceeding in value one hundred thousand

dollars, exclusive of improvements; and were also authorized to sell or lease land and water power.

Under this act the Locks and Canals Company proceeded to effect a reorganization, increasing the number of their shares to twelve hundred, at five hundred dollars per share, and taking into their hands the whole property of the Merrimack Manufacturing Company. It then sold to this company the land and water-power which it now possesses. This latter company, therefore, though at one time the owners of the whole water power, hold the property they now possess under the same title with the other corporations in this city. By this arrangement the operations of this place were conducted on a better system, and scope was given for the action of as many distinct companies as the Locks and Canals could supply with water-power and land. To the furnishing of this power, and of mills and

machinery to make it available, has the sphere of the Locks and Canals Company been ever since confined.

THE NEW MANUFACTURING VILLAGE.

Thus a beginning was made in the growth of this place, and the plan finally settled by which its operations were to be conducted. It may be interesting to look back and name some of the steps of its progress. The call for labor in digging the canals, and in erecting mills, brought a sudden increase of population, and soon houses began to be erected for the accommodation of the hundreds that flocked here. The first stage coach that came regularly to this place was set up in 1822 — a branch from the mail line which passed through old Chelmsford. In 1823 the large machine shop was commenced. It was com-

pleted in 1825, at a cost of one hundred and fifty thousand dollars. Mr. Paul Moody, before named, was invited to take charge of it, and for this purpose removed his family to this place. The first public worship, since the days of Eliot, that was held in what is now Lowell, was in 1824, the Rev. Mr. Edson preaching his first sermon the first Sunday in March of that year. The Hamilton Company was incorporated January 26, 1825, and soon commenced laying the foundations of their mills. The Stone House, near Pawtucket Falls, was erected the same year, and when opened afforded agreeable accommodations to the numerous visitors whom the beautiful scenery around it, and the growing interest in this place, brought hither. The Middlesex Mechanics' Association, formed for the assistance and improvement of the intelligent Mechanics who were here increasing in numbers; was incorporated January 18, 1825.

On the 16th of March, in that year, the large stone church which the Merrimack Company had built, was solemnly consecrated to God by Bishop Griswold, and at the same time the Rev. Theodore Edson was invested with the order of priest. This was the first church which was here erected, and the same in which the latter gentleman still continues to officiate. The rapid growth of this place up to this time will be seen by the following statement of the population. East Chelmsford, in 1820, had two hundred inhabitants. At the beginning of 1826 it contained twenty-five hundred. On the first of March of the last named year this place was incorporated into a town by the name of Lowell, in honor of Francis Cabot Lowell, a sketch of whose services, in connexion with the rise of Cotton Manufactures in this country, will be found in the Appendix.

THE TOWN OF LOWELL.

The ten years that succeeded the incorporation of Lowell as a town, were marked by as great revolutions in the business concerns of the country, as could be found in any ten years that might be named. There was the great depression of 1827 and 1828, when so many manufacturing companies in New England became bankrupt, and universal gloom prevailed. This was followed by the great rage for speculation which reigned in 1831 and the few following years. The fortunes of the young town were affected like those of all other places. A cloud rested upon her prospects in the former period, and when the bubble of the latter period burst, many were ruined who had here purchased lands at enormously extravagant prices. Yet through all this the growth of Lowell was in the main

steadily onward. She was extending the plan, and laying broad and deep the foundations of a great community. New streets were opened, houses and stores were put up, churches were erected, canals were dug, manufacturing operations were extended, and within the ten years named above, the population of the town was multiplied six fold. The increase was without a parallel in any place, in any country. This prosperity was the result of the sagacity, enterprize, and energy of the capitalists and manufacturers, by whom the fortunes of the place were guided.

A few of the leading events of these years will be here briefly noticed. The Lowell Bank—the first in the town—was incorporated March 11, 1828, with a capital of one hundred thousand dollars. That same year two new manufacturing companies were incorporated—the Appleton and Lowell—both of which immediately proceeded to the erec-

tion of mills. An Institution for Savings was incorporated, and went into operation in 1829. A vast increase of the business of Lowell was planned in 1830, by the construction of the Western, or Suffolk, Canal. This was dug in 1831 and 1832, at an expense of seventy thousand dollars. Instead of using the whole fall of thirty-two feet at once, it was proposed to divide it into two falls of sixteen feet each; and thus power was obtained for three new corporations. The Suffolk, Tremont, and Lawrence Companies were all incorporated in the winter and spring of 1831, and forthwith commenced the erection of mills and boarding houses. That same year the Railroad Bank was incorporated and went into operation with a capital of eight hundred thousand dollars. Simultaneously with these movements a new company, incorporated June 5, 1830, by the name of the Middlesex Manufacturing Company, purchased

the water privilege before owned by Thomas Hurd, and proceeded to put up a large brick mill for the manufacture of wool. A bleaching company, with a capital of fifty thousand dollars, was incorporated in 1832. Still another canal was dug in 1835, at an expense of thirty-five thousand dollars, to carry water to the mills of the Boott Company, incorporated March 27th of that year, and which proceeded to put up five large factories, and eight blocks of boarding houses.

Nor was it merely in this extension of her manufacturing operations that Lowell began at once to assume the importance of a great town. Other buildings were erected, such as usually belong to such a town. A spacious hall for town purposes, with committee rooms and stores underneath, was completed in 1830, at an expense of thirty thousand dollars. Churches for the Baptist, Orthodox, Universalist, and Unitarian denominations were erected; the

latter, a substantial brick building, with a chaste and beautiful interior, dedicated Dec. 25, 1832, and costing twenty-eight thousand dollars. A large hotel — the Merrimack House — was built the same year. This House belongs to the first class of similar establishments, and cost thirty thousand dollars. Another public hall, with reading and library rooms, was built in 1835, for the use of the Middlesex Mechanics' Association, on land given by the Locks and Canals Company, and at a cost of twenty thousand dollars; nearly the whole of which was paid by contributions from the different manufacturing companies. About this time also two large Grammar School Houses were erected, at an expense to the town of twenty-one thousand dollars. A large Alms-house and Poor Farm were provided for the town, a little over a mile distant from its centre, the cost of which was eighteen thousand five hun-

dred dollars. By the annexation to Lowell, in 1834, of that part of the town of Tewksbury called Belvidere, the territory of the town was enlarged by the addition of land, which, from its elevated and pleasant situation, was peculiarly valuable for building lots, for which purpose it has since been extensively used. The opening of the Railroad, July 4, 1835, which connects Boston with Lowell, brought the thriving town within an hour's ride of the metropolis.

These are some of the progressive steps of the rapid and unexampled advancement of this place. A simple statement of the population of the town, at different periods within the ten years here alluded to, will still further illustrate its growth. Population of Lowell in 1826, two thousand five hundred inhabitants. In 1828, three thousand five hundred thirty-two. In 1830, six thousand four hundred seventy-seven. In 1832, ten thousand

two hundred forty-four. In 1833, twelve thousand three hundred sixty-three. In 1836, seventeen thousand six hundred thirty-three. Lowell was incorporated as a city March 30, 1836. The organization of the city government took place in the spring of that year. Elisha Bartlett, M. D. was the first Mayor.

THE CITY OF LOWELL.

During the nine years that Lowell has been a city, it has undergone great changes, though not so many nor so striking as during its history as a town. The attention of the new municipal government was at once directed towards improving the general condition of the city, by constructing sidewalks, lighting the streets, the preservation of the public health, the erection of new edifices for the use of the public schools, and the estab-

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lishment of sewers, which are permanent and costly structures, effectually draining the most densely settled parts of the city. It was not till 1844 that the experiment was made of paving a public street. The success of the plan has led to an extension of paving this year.

In 1837 a large Market-house was completed. The building is of brick, one hundred and fifty feet long, and forty-five feet wide, three stories high, and contains twenty-two stalls for meat, vegetables, and fish. In the second and third stories are the court-rooms for the county courts, and police court of the city, with offices and jury-rooms. The cost of this building, with the land, was forty-six thousand, one hundred and five dollars. The first court was held in it in April 1837.

Since the incorporation of Lowell as a city, two new companies have erected extensive works. The Massachusetts Manufacturing

Company was chartered in 1839, and has built four large mills, now in successful operation, together with several blocks of boarding-houses. The Prescott Company was incorporated in 1843, and have erected a mammoth mill on the banks of the Concord River. It has not yet received its machinery. An extensive foundry was built in 1840, by the Locks and Canals Company, at a cost of thirty thousand dollars. Here about seventy men are constantly employed, making the castings which are used in the machine-shops and factories of the city. Among other improvements which have been made within the period above named, we may mention the erection of eight new churches; the purchase and establishment, in 1839, of a hospital; the building of a jail, in 1838, on the modern plan of separate cells; the consecration, in 1840, of a beautiful Cemetery, which will be further described hereafter; and the purchase, this

year, by the city, of two large commons, one of twenty acres, the other of nine, which are to be forever kept open for walks, parades, and other uses. To these should be added the establishment, this year, of a City Library; and the fact that the first steps have been taken to provide immediately for a house of reformation for juvenile offenders.

A mention of these improvements reminds us of what after all has been the best change within the last few years—a change in the feelings of the citizens of Lowell. They have begun to cultivate home attachments to the place. They have manifested a disposition to make this their residence for life. They have felt prompted, therefore, to efforts to improve and adorn the place, to establish the conveniences and comforts which a large city demands, and to leave no practicable means untried which promise to elevate the tone and character of society. The existence of the

disposition referred to is attested by the kind of improvements above indicated, and by the fact that a large number of private residences, and some of them commodious and costly dwellings, have recently been erected.

LOCKS AND CANALS COMPANY.

This sketch of the successive steps in the history of this young city, may be appropriately followed by a statement of the extent of the operations of the chief establishments here, together with a summary of these operations as they exist at the present time.

We begin with the Locks and Canals Company, whose works are carried on, as we have before seen, under the charter of 1792. Their capital stock is six hundred thousand dollars. They supply water-power to the

other corporations, manufacture machinery, railroad-cars and engines, and contract for the erection of mills. They have two shops—one of which is the largest in the United States—a smithy and a foundry. They keep, usually, five hundred male laborers employed; but, when building mills, they give work, directly or indirectly, to seven hundred more. They manufacture one thousand two hundred and twenty-five tons of wrought and cast iron per year, and consume annually fifteen thousand bushels of charcoal, two hundred chaldrons of smiths' coal, four hundred tons of hard coal, two hundred cords of wood, and two thousand three hundred gallons of oil. They can furnish machinery complete for a mill of five thousand spindles in four months; and lumber and materials are always at command, with which to build or rebuild a mill within that time, if required. Beside selling a large amount of land, on

which the city now stands, at prices varying from one eighth to six eighths of a dollar per square foot, it has had the profits of all the mills and boarding-houses it has built on good contracts for other corporations, the profits likewise of the manufactures of its shops; and, in addition to this, it reserves and receives an annual rent for the water power disposed of for each mill. Within the last few months, this company has disposed of a large portion of its lands and buildings in Lowell, making sales to the amount of four hundred and seventy-five thousand dollars. The stock of this company has been sold at more than three hundred and fifty per cent. advance above par. In the recent sale of their property, the shops and smithy, and the boarding-houses connected with them, were purchased by individuals who were incorporated this year into a company by the name of the 'Machine Shop.' The manufacture of machinery, rail-

road-cars, and engines, is for the present here carried on in the same manner and to the same extent as heretofore.

MERRIMACK MANUFACTURING COMPANY.

The act incorporating this company was passed in 1822. Its capital stock is two millions of dollars. It has five cotton mills, extensive print works, and one hundred and fifty-five boarding-houses. It runs forty-one thousand six hundred spindles, and one thousand three hundred looms. It gives employment to one thousand two hundred and fifty females, and to five hundred and fifty males. It manufactures two hundred and fifty thousand yards of cloth per week, working up in that time fifty-six thousand pounds of cotton. It consumes, annually, five thousand tons of anthracite coal, two hundred cords of wood, and thirteen thousand gallons of oil. The stock

of this company is at great advance above par, and dividends have recently been made of ten per cent. for six months.

HAMILTON MANUFACTURING COMPANY.

Incorporated in 1825. Capital stock one million two hundred thousand dollars. It has three mills, extensive print works, and fifty boarding houses. It runs twenty-two thousand one hundred and forty-four spindles, and six hundred and eight power looms. It employs six hundred and fifty females, and two hundred and fifty males. It makes one hundred and ten thousand yards of cloth per week, manufacturing in that time forty-two thousand pounds of cotton. It consumes, annually, three thousand tons of anthracite coal, five hundred cords of wood, and six thousand five hundred gallons of oil.

APPLETON MANUFACTURING COMPANY.

This Company was incorporated in 1828, and in the same year commenced the erection of their mills. Their capital stock is six hundred thousand dollars. In their two mills they run eleven thousand seven hundred and seventy-six spindles, and four hundred looms. They have thirty boarding houses, and employ three hundred and forty females, and sixty-five males. They make one hundred thousand yards of cloth per week. They work up thirty-six thousand pounds of cotton per week. Of coal they use three hundred tons per year, and of oil three thousand four hundred and forty gallons.

LOWELL MANUFACTURING COMPANY.

The Lowell Company was incorporated in 1828. Their capital stock is six hundred thousand dollars. They have two mills, one for the manufacture of cotton, and one for the manufacture of carpets, and twenty-seven boarding houses. They run six thousand spindles for cotton, and one hundred and fifty-two looms. Beside these they have fifty power looms for carpet weaving, and forty hand looms, for the same purpose. They manufacture over ninety-five thousand yards of cotton cloth per week, and over seven thousand yards of carpeting. They consume yearly five hundred tons of coal, five hundred cords of wood, four thousand gallons of olive oil, and four thousand gallons of sperm oil. The power looms for carpet weaving are the first and only ones

that have ever been successfully employed. They are the invention of a young but highly distinguished machinist, formerly of Lowell, and have been the objects of much admiration.

MIDDLESEX MANUFACTURING COMPANY.

Incorporated in 1880. Capital stock seven hundred and fifty thousand dollars. This Company has two mills, one of which is very large, and two dye-houses. It manufactures broadcloths and cassimeres. It runs seven thousand two hundred spindles, forty-five looms for broadcloth, one hundred and thirty-two for cassimeres. It employs five hundred and fifty females, and two hundred and fifty males. It makes twelve thousand yards of cassimere per week, and two thousand two hundred yards of broadcloth. It works up one million pounds of wool per

year, and three million teasles. It consumes annually six hundred tons of coal, one thousand five hundred cords of wood, fifteen thousand gallons of oil for oiling wool, and six thousand gallons of sperm oil.

SUFFOLK MANUFACTURING COMPANY.

Incorporated in 1830. Capital stock six hundred thousand dollars. It has two mills running eleven thousand eight hundred and seventy-two spindles, and four hundred and four looms. It has thirty boarding houses, and employs three hundred and forty females, and seventy males. It makes one hundred thousand yards of cloth per week, chiefly drillings, using for this thirty-six thousand pounds of cotton. It consumes annually three hundred tons of coal, fifty cords of wood, and three thousand five hundred gallons of oil.

TREMONT MANUFACTURING COMPANY.

Incorporated in 1830. Capital stock six hundred thousand dollars. Its two mills run eleven thousand five hundred and twenty spindles, and four hundred and nine looms. It has thirty boarding houses, and employs three hundred and sixty females, and seventy males. It makes one hundred and fifteen thousand yards of cloth per week, working up in that time thirty thousand pounds of cotton. It consumes two hundred and fifty tons of coal, sixty cords of wood, three thousand six hundred and ninety-two gallons of oil, yearly.

LAWRENCE MANUFACTURING COMPANY.

Incorporated in 1830. Capital stock one million five hundred thousand dollars. It has

sixty-four boarding houses, and five mills. It runs thirty-two thousand six hundred and forty spindles, and nine hundred and fifty looms. It employs nine hundred females, and one hundred and seventy males. It makes two hundred and ten thousand yards of cloth per week, working up in that time sixty-five thousand pounds of cotton. It consumes, annually, six hundred and fifty tons of coal, one hundred and twenty cords of wood, and eight thousand two hundred and seventeen gallons of oil.

BOOTT MANUFACTURING COMPANY.

Incorporated in 1835. Capital stock one million two hundred thousand dollars. It has sixty-four boarding houses, and four mills, running thirty-two thousand and thirty-six spindles, and nine hundred and ten looms. It

employs seven hundred and eighty females, and one hundred and thirty males. It makes one hundred and eighty-five thousand yards of cloth per week, working up sixty-three thousand pounds of cotton in that time. Its annual consumption is, of coal, seven hundred and fifty tons; of wood, seventy cords; of oil, seven thousand one hundred gallons.

MASSACHUSETTS MANUFACTURING CO.

Incorporated in 1839. Capital stock one million two hundred thousand dollars. It has sixty-four boarding houses, and four mills. It runs twenty-eight thousand two hundred and eighty-eight spindles, and nine hundred and four looms. It employs seven hundred and fifty females, and one hundred and sixty males. It makes two hundred and ninety-two thousand yards of cloth per week, work-

ing up in that time ninety-six thousand pounds of cotton. It consumes, annually, seven hundred and fifty tons of coal, seventy cords of wood, and seven thousand one hundred gallons of oil.

SMALLER MANUFACTURING AND MECHANICAL ESTABLISHMENTS.

A great amount and variety of other business is done in Lowell, beside that of the incorporated companies above named. Mechanical skill and ingenuity here naturally concentrate, and the best of artizans and of workmanship in almost all branches of mechanical industry may be here found. The extensive powder works of Oliver M. Whipple, Esq., before referred to, are still in successful operation, making eight hundred and eighty-five thousand pounds of

powder per year. The Lowell Bleachery, with a capital of fifty thousand dollars, carries on a large business for an establishment of that kind. Beside these, Lowell has a Flannel Mill; Blanket Mill; Paper Mill; Planing Machines; a Card and Whip Factory; Reed Machines; (the three last among the most curious specimens of human contrivance;) Foundry; Grist and Saw Mills; Sash and Door Manufactory; Lock Manufactories; Carriage Manufactory; Loom Harness Shops;—together employing about five hundred hands, and a capital of six hundred thousand dollars.

LOWELL IN 1845.

We may here sum up and put together some of the facts which have been referred to in the preceding statements. Lowell has

at present a population of nearly thirty thousand souls. About one third of this whole number are operatives, either in the mills, or connected with the mechanical employments before described, viz. six thousand three hundred and twenty females, and two thousand nine hundred and fifteen males. There are thirty-three mills beside the print works, and about five hundred and fifty houses belonging to the corporations. The capital stock here invested in manufacturing and mechanical enterprises is twelve millions of dollars. There are made in Lowell, every week, one million four hundred and fifty-nine thousand one hundred yards of cloth, amounting to seventy-five million eight hundred and sixty-eight thousand yards per year. This is nearly enough to belt the globe twice round. Sixty-one thousand one hundred bales of cotton are worked up every year. Of printed calico there are here made annu-

ally fourteen millions of yards. The annual consumption in the Lowell manufactories is, of coal, twelve thousand five hundred tons; of wood, three thousand two hundred and seventy cords; of oil, sixty-seven thousand eight hundred and forty-two gallons; of charcoal, six hundred thousand bushels; of starch, eight hundred thousand pounds. Over one million and a half of dollars are paid out every year for labor, and that sum has been received as the profits for one year of this immense business. At no time have the business prospects of the city been more encouraging than they are now. A large mill has this season been completed by the Lawrence Corporation, equal in size to two of their old ones. The Suffolk and Tremont Companies have filled up the spaces between their mills, making one vast mill of the two which belong to each. The Hamilton and Appleton Companies are engaged in a simi-

lar extension of their works. A mammoth mill is to be erected forthwith by the Merrimack Company, in the rear of their present factories. New mills are to be built likewise by the Middlesex, Hamilton and Prescott Companies. By arrangements which will probably be soon completed, the business of this city will be extended to the amount of twenty per cent.

A LOWELL CORPORATION.

From this sketch of the growth and extent of the operations of this city, we come now to some branches of our subject, which are of the highest interest and importance; we mean the method upon which business is here conducted, the provisions made for the health, comfort, and moral protection of the operatives, and the actual character which the mass

of these operatives sustain. On this last point, all know that conflicting statements have been put forth. Lowell has been highly commended by some, as a model community, for its good order, industry, spirit of intelligence, and general freedom from vice. It has been strongly condemned, by others, as a hot-bed of corruption, tainting and polluting the whole land. We all, in New England, have an interest in knowing what are the exact facts of the case. We are destined to be a great manufacturing people. The influences that go forth from Lowell, will go forth from many other manufacturing villages and cities. If these influences are pernicious, we have a great calamity impending over us. Rather than endure it, we should prefer to have every factory destroyed; the character of our sons and daughters being of infinitely more importance than any considerations "where-withal they shall be clothed." If, on the

other hand, a system has been introduced, carefully provided with checks and safeguards, and strong moral and conservative influences, it is our duty to see that this system be faithfully carried out, so as to prevent the disastrous results which have developed themselves in the manufacturing towns of other countries. Hence the topics above named assume the importance of the highest moral questions. They will justify and demand the most careful consideration. The author writes after a nine years' residence in this city, during which he has closely observed the working of the factory system, and has gathered a great amount of statistical facts which have a bearing upon this subject. He believes himself to be unaffected by any partisan views, as he stands wholly aside from the sphere of any interested motives. He enters upon this part of his work, feeling, in the outset, that he has no case, one way or the other, to make out, and intend-

ing principally to confine himself to the presentation of the facts which he has collected.

As preparing the way to a more intelligent view of the case, a brief description may be here given of a Lowell Corporation.

On the banks of the river, or of a canal, stands a row of mills, numbering, on different corporations, from two to five. A few rods from these, are long blocks of brick boarding-houses, containing a sufficient number of tenements to accommodate the most of the operatives employed by the Corporation. Between the boarding-houses and the mills is a line of a one story brick building, containing the counting room, superintendent's room, clerk's and store rooms. The mill yard is so surrounded by enclosures, that the only access is through the counting room, in full view of those whose business it is to see that no improper persons intrude themselves upon the premises.

Thus the superintendent, from his room, has the whole of the Corporation under his eye. On the one side are the boarding-houses, all of which are under his care, and are rented only to known and approved tenants; on the other side are the mills, in each room of which he has stationed some carefully selected overseer, who is held responsible for the work, good order, and proper management of his room. Within the yard, also, are repair shops, each department of which, whether of iron, leather, or wood, has its head overseer. There is a superintendent of the yard, who, with a number of men under his care, has charge of all the out-door work of the establishment. There is a head watchman, having oversight of the night watch, who are required to pass through every room in the mills a prescribed number of times every night.

This, then, is the little world over which the superintendent presides. Assisted by his

clerk, who keeps the necessary records, by the paymaster, who, receiving his funds from the treasurer of the Corporation, disburses their wages to the operatives, and not forgetting even the "runner," as he is called, who does the errands of the office, the superintendent's mind regulates all; his character inspires all; his plans, matured and decided by the directors of the company, who visit him every week, control all. He presides over one of the most perfect systems of subdivided and yet well-defined responsibility. Of course every thing depends upon the kind of man who fills such a post as this. No pecuniary considerations have ever stood in the way of the appointment, by the Corporations, of the best men who could be found. To their remarkable and universally acknowledged success in this respect, to their selection of individuals highly distinguished both for their general force of character, and for their in-

tegrity, conscientiousness, and magnanimity, is Lowell chiefly indebted, both for the profitableness of her operations, and the character which she has sustained.

A LOWELL BOARDING-HOUSE.

Each of the long blocks of boarding-houses is divided into six or eight tenements, and are generally three stories high. These tenements are finished off in a style much above the common farm-houses of the country, and more nearly resemble the abodes of respectable mechanics in rural villages. They are all furnished with an abundant supply of water, and with suitable yards and out-buildings. These are constantly kept clean, the buildings well painted, and the premises thoroughly whitewashed every spring, at the Corporation's expense. The front room is

usually the common eating-room of the house, and the kitchen is in the rear. The keeper of the house, (commonly a widow, with her family of children,) has her parlor in some part of the establishment; and in some houses there is a sitting-room for the use of the boarders. The remainder of the apartments are sleeping-rooms. In each of these are lodged two, four, and in some cases six boarders; and the room has an air of neatness and comfort, exceeding what most of the occupants have been accustomed to in their paternal homes. In many cases, these rooms are not sufficiently large for the number who occupy them; and oftentimes that attention is not paid to their ventilation which a due regard to health demands. These are points upon which a reform is called for; and, in the construction of new boarding-houses, this reform should be attempted. At the same time, it should in justice be added, that the evil alluded

to is not peculiar to Lowell, and will not probably appear to be a crying one, if the case should be brought into comparison with many of the apartments of milliners and sempstresses in the boarding-houses of our cities.

As one important feature in the management of these houses, it deserves to be named that male operatives and female operatives do not board in the same tenement; and the following Regulations, printed by one of the companies, and given to each keeper of their houses, are here subjoined, as a simple statement of the rules generally observed by all the Corporations.

"REGULATIONS to be observed by persons occupying the Boarding-houses belonging to the Merrimack Manufacturing Company.

They must not board any persons not employed by the company, unless by special permission.

No disorderly or improper conduct must be allowed in the houses.

The doors must be closed at 10 o'clock in the evening; and no person admitted after that time, unless a sufficient excuse can be given.

Those who keep the houses, when required, must give an account of the number, names, and employment of their boarders; also with regard to their general conduct, and whether they are in the habit of attending public worship.

The buildings, both inside and out, and the yards about them, must be kept clean, and in good order. If the buildings or fences are injured, they will be repaired and charged to the occupant.

No one will be allowed to keep swine."

The hours of taking meals in these houses are uniform throughout all the Corporations

in the city, and are as follows: Dinner — always at half past twelve o'clock. Breakfast — from November 1 to February 28, before going to work, and so early as to begin work as soon as it is light; through March at half past seven o'clock; from April 1 to September 19, at seven o'clock; and from September 20 to October 31, at half past seven o'clock. Supper — always after work at night, that is, after seven o'clock, from March 20 to September 19; after half-past seven o'clock, from September 20 to March 19. The time allowed for each meal is thirty minutes for breakfast, when that meal is taken after beginning work; for dinner, thirty minutes, from September 1 to April 30; and forty-five minutes from May 1 to August 31.

That this time is too short for a due regard to health, must be obvious to all. And yet it is probably as long as most business men

allow to themselves; it is probably as long as is spent at the tables of more than half of our public hotels. For the sake of the operatives we wish that the time for meals was lengthened; but we do not see the propriety of calling in this quarter for a reform in those habits of hasty eating which pervade the whole country, and characterize our nation. The food that is furnished in these houses is of a substantial and wholesome kind, is neatly served, and in sufficient abundance. Operatives are under no compulsion to board in one tenement rather than another; it is for the interest of the boarding-house keeper, therefore, to have her bill of fare attractive. And then, as to the character of these boarding-house keepers themselves, on no point is the superintendent more particular than on this. He has generally a great liberty of choice of tenants. Applications for these situations are very numer-

ous. The rents of the company's houses are purposely low, averaging only from one third to one half of what similar houses rent for in the city. In times of pressure a part of this low rent, and in some instances the whole of it, has been remitted. There is no intention on the part of the Corporation to make any revenue from these houses. They are a great source of annual expense. But the advantages of supervision are more than an equivalent for this. No tenant is admitted who has not hitherto borne a good character, and who does not continue to sustain it. In many cases the tenant has long been keeper of the house, for six, eight, or twelve years, and is well known to hundreds of her girls as their adviser and friend and second mother. Though the price of board is low, at present but one dollar and twenty-five cents for female, and one dollar and seventy-five cents for male boarders, yet

many of them, aided by the cheap rents just alluded to, and by prudent and judicious management, have paid off old debts, have educated sons and daughters, and have made a comfortable provision for old age. Many cases of this kind have come to the personal knowledge of the author. He knows a man, who, broken down by unfortunate speculations at the South, removed his wife and family of daughters to Lowell; and there, forgetting their former affluence, and relying hopefully upon their own exertions, honestly paid off, in a few years, by the fruits of their labor, an old incumbrance of over two thousand dollars, and realized enough beside to give an enviable education to his children. He knows, also, of a poor widow, who, running in debt for every cent of the furniture of her boarding-house, paid for it all, in a short time; and, by eleven years of industry and economy, saved the snug sum of fourteen

hundred dollars, with which she purchased a quiet retreat for her old age in the country. These are undoubtedly uncommon cases, and they should be taken as such. They were the reward of more good management and thrift than fall to the ordinary lot.

The influence which this system of boarding-houses has exerted upon the good order and good morals of the place, has been vast and beneficent. It is this system to which we especially referred in our previous chapter on Waltham. By it the care and influence of the superintendent are extended over his operatives, while they are out of the mill, as well as while they are in it. Employing chiefly those who have no permanent residence in Lowell, but are only temporary boarders, upon any embarrassment of affairs they return to their country homes, and do not sink down here a helpless caste, clamouring for work, starving unless

employed, and hence ready for a riot, for the destruction of property, and repeating here the scenes enacted in the manufacturing villages of England. To a very great degree the future condition of Lowell is dependent upon a faithful adhesion to this system; and it will deserve the serious consideration of those old towns which are now introducing steam mills, whether, if they do not provide boarding-houses, and employ chiefly other operatives than resident ones, they be not bringing in the seeds of future and alarming evil.

A LOWELL COTTON MILL.

The cotton purchased by agents at the South, and shipped to Boston, is brought to Lowell by the railroad, and deposited in storehouses ready for use. When wanted,

it is wheeled by the yard hands to the carding-room, which is on the first floor of the mill. Here the bales are opened, and the cotton from different bales is well mixed together, in order to give the whole a more uniform appearance. It is then made to pass through a machine called the "whipper," by which it is beaten and thrown into a light state. Passing through another machine called the "conical willow," it comes out still more opened and cleansed, and is ready for the "picker." The picker rooms are two small buildings standing a few feet removed from the mill, and are made fire proof, in order to guard against ignition, which is liable to ensue from the great rapidity of the machinery. The cotton, laid on to a strip of cloth or leather called an "apron," is drawn into the picker when it is thoroughly opened and freed from lumps and dust, and then, passing through the "lap-

per," it comes out in sheets, nicely wound round a wooden cylinder. These laps are then taken to the card room, and are applied to the backs of cards. They go through two processes of carding, the first by the "breaker," after which the cotton passes through the "lap-winder" or "doubler," by which it is wound again on the lap, and then through the "finisher," by which the carding process is completed.

Thus far only male hands have been employed, as the work is both laborious and disagreeable. The cotton is now taken by female operatives who carry it first through the "drawing frame," by which the fibres are laid in one direction, and are brought together in a rope-like form, then through the "double speeder," which twists this into a coarse "roving," and then through the "stretcher," which still further draws the roving out. In this stage it is packed in

boxes, and by means of the "elevator" it is taken up into the spinning room above.

In the carding room there are two overseers, three hands employed with the pickers, two grinders to keep the cards in order, five persons employed in stripping the cards — all of the above being males. There are likewise in this room eight females attending the drawing frames, about a dozen more employed upon the speeders, together with three or four spare hands, who are employed by the day, the others being paid by the quantity of work got off. Wages of the drawers will average one dollar sixty-two and a half cents per week; speeder hands about two dollars per week. In this case, and throughout this chapter, when wages are given, the net earnings are meant exclusive of board.

From the carding room we pass up to the spinning room. The spinning frames in Low-

ell are all "throstles," both warp and filling. A large mill will soon be completed, where mule spinning will be adopted, and this will be the first and only one of the kind in the city. In a Lowell spinning room about sixty girls are employed, including both warp and filling spinners, and four or five spare hands. In the room there are three male overseers, and one man to distribute roving. Spinning is light and easy work compared either with weaving or attending the speeders, but requires more skill than drawing. The pay for this work is graduated accordingly, averaging about one dollar and seventy-five cents per week.

On the speeders, throstles, warpers, and dressers, there are clocks, which mark the quantity of work that is done. The clocks are made to run one week, at the end of which the overseer transfers the account to a board which hangs in the room in the sight of all the

operatives. From this board the monthly wages of each operative are ascertained.

The filling is now ready for the weaver ; but the warp undergoes yet further preparation in what is called the "dressing room." Here the yarn is warped off from the spools upon section beams. These beams are then transferred to the dresser, who sizes, and brushes, and dries the yarn. The yarn on eight of these beams is then transferred to a loom beam, the ends of the yarn being drawn in through the harness and reed. This is done by hand, and it is the first and only hand process in the manufacture of the fabric.

Warping is regarded as hard work, as it requires constant standing, and reconnecting the threads, which are perpetually running off, or are breaking between the spool and the beam. The pay is made out for so many thousand yards wound on a section beam, and will average two dollars and twenty-five cents

per week. These wages are made high solely on account of the hardness of the work, which in other respects is not difficult, and requires no rare skill. For the same reason the various processes are so arranged, that the warpers will not be required to work as many hours as the other operatives, they being frequently permitted to leave the mill some hours before the rest. Dressing is paid higher than any other process, because it demands peculiar skill and judgment. This also is female work, and the average pay for it is from two dollars and fifty cents, to three dollars and fifty cents per week, while from five to six are occasionally earned by the most skilful hands. In the dressing room are usually three overseers, from six to eight dressers, from six to eight warpers, and from six to eight drawers-in. Drawing-in is light and easy work, the operative sitting all the time by her window. The pay, being piece work, will vary according to

dexterity, but will average from two to three dollars per week.

We now come to the weaving room, where the materials before prepared are put together in cloth. There are two weaving rooms to each mill. In each room are two or three overseers, and a boy to distribute the filling. In both rooms there are from one hundred and thirty, to one hundred and forty weavers employed. Paid by the piece, their wages will vary according to diligence and skill, but will average from two dollars, to two dollars and a quarter per week. In the mills which make the finer kinds of cloth, superior skill is required, and wages will average somewhat more.

When woven, the fabric is carried to the cloth room. Here are employed one male overseer, and a number of girls, varying from ten to twenty-five, according to the kind of goods made. The cloth is trimmed, measured,

folded, and recorded. It is then either baled, or delivered to the print works.

Beside the hands above enumerated, each mill has two watchmen on duty day and night, who relieve each other at intervals of six hours each. Each room, likewise, has one woman, generally Irish, who does nothing but keep the room clean, by constant washing, scrubbing, and sweeping.

LOWELL CALICO PRINTING.

The following description of the process of calico printing was kindly furnished for this work by Dr. SAMUEL L. DANA, Chemist to the Merrimack Print Works, and author of a well known book on Agricultural Chemistry.

The cloth received from the manufactory is covered with a fine nap, which, if printed, would rise up and give the colored parts a

pepper-and-salt look. To get rid of this, the cloth is singed, not as the cook singes a fowl, by a blaze, but by running the cloth over a half cylinder of copper, heated red hot. The cloth is passed over dry, and repassed; after which it is moistened by wet rollers, to extinguish any shreds which might happen to be on fire. This singeing process always excites the wonder of the beholder, who is not a little astonished that the cloth is not injured.

The next process is to bleach the cloth. On the success of this depends all the after work. A good white is not only the soul of a print, but without it, no good and brilliant color can be dyed. The greatest difficulty is to remove every trace of grease and oil, imparted by the spinner and weaver. The cloth is therefore put into big tubs, holding five hundred pieces, and steeped in warm water some hours. It is then washed in the *dash-wheel*, and subjected to the following operations, which convert the

oil to soap, and remove it with the coloring matter.

1. Boiled by steam in creamy lime.
2. Washed in the dash-wheel.
3. Boiled in alkali by steam.
4. Washed in the dash-wheel.
5. Steeped in bleaching powder solution some hours.
6. Steeped in oil vitriol and water, about the strength of lemon juice.
7. Washed in the dash-wheel.
8. Squeezed between rollers.
9. Mangled and dried in air, or in warm rooms, built for this purpose.

The cloth is now perfectly white, and loses not so much in weight and strength as by the old process of grass bleaching.

The bleached cloth is now printed with one or more colors, — four to six colors may be applied by the printing machine. If more are wanted, they are introduced by hand, with

blocks, after the other colors are finished. The figure or design is engraved on a copper roller, each color having a separate roller. The color which the beholder sees imprinted, as he watches the process, is not the color that is to be, when the print is finished. The color which he sees, is, with the exception of brown, or blue, or black occasionally, fugitive. It is merely what is called "*sightening*," that is, a color imparted to the paste, or "*thickening*," which is imprinted by the roller to enable the machine printer to judge of the perfectness of the work. The paste, or *thickening*, contains the *mordant*, that is, the peculiar substance, which, combining chemically with the cloth, enables it to dye a peculiar color, according to the nature of the mordant and dye-wood. The cloth dyes only where the mordant is applied, that is, on the printed figure only. The mordants generally used are alum and copperas, each of which is first changed to *acetate of*

alumina, or *iron*; that is, the color-maker takes away the oil of vitriol from the alum and copperas, and substitutes vinegar in its place. Sometimes the *iron liquor*, as it is called, is made by dissolving iron turnings in pyroligneous, or wood acid.

The preparation of *color*, and the thickening it with flour, starch, gum, &c., is a distinct branch, carried on in the color-shop of the print works.

It may be added, that with madder; iron dyes black and purple, according to its strength; alum, dyes red of various shades, and a mixture of the two dyes chocolate. So that out of the same dye kettle come various colors, according to the mordant, and these colors are all fast.

The cloth having been printed and dried, is "*aged*," during which a chemical combination takes place between the mordant and cloth. Ordinarily this occurs in two or three weeks,

by the natural affinity of the cotton fibre and mordant; but by certain agents this chemical change is hastened and perfectly effected in two or three days; but as this process goes on in conjunction with the others, the visiter sees only the folding up and winding into rolls of the pieces of cloth, though all the time this change is going on. The cloth is then passed, by means of rollers, through a boiling-hot solution of *phosphate of soda*, to render insoluble any uncombined mordant, and to wet the cloth evenly. It is then washed in the dash-wheel, and after this, to remove the *thickening*, passed, for twenty or thirty minutes, through bran, or meal and water, quite hot, washed, and it is now ready for dyeing.

The dye-woods used are, madder, bark, or logwood, the last only for mourning prints, or black and white. The dye-wood is put into large wooden vats, with a portion of water, and then the pieces of cloth, sixteen in each

vat, are introduced over a winch, moved by water-power. Steam is then admitted, the goods turned through and through, round and round, gradually heating the water, till, at the end of two hours, it rises near to boiling, and the mordanted cloth is perfectly dyed. It is taken out, rinsed, and washed in the dash-wheel.

The cloth after this is passed, by means of a winch, either through hot water and bran, or through hot soap, for half an hour, washed, and then again put through these operations, again washed, and then rinsed through a hot solution of chloride of soda, washed again, squeezed, and dried either in air or in warm rooms. Sometimes they are mangled with some stiffening, and so are finished.

The visiter of print works will see a great number of men, busily employed, dipping wooden frames, on which are stretched pieces of cloth, printed with a brown figure, into deep

vats, filled with a green-blue liquor. The cloth comes out with a *greenish* hue, and immediately grows *blue* in the air, on all parts, except where the brown figure was. That *resists* or *throws off* the blue vat. Now the blue vat contains a solution of indigo in lime water. Indigo is one of the most insoluble substances in water; but by means of copperas and lime, the oxygen of the indigo is abstracted by the iron; it then becomes greenish, and is dissolved by the lime water. Exposed to air, it again absorbs oxygen, and becomes blue. It is during this change from green to blue that it becomes chemically united to the cloth. The brown figure *resists*, because it is a preparation of copper, which yields its oxygen to the indigo, on the figure, while in the vat. The figure becomes covered with blue indigo in the vat; it forms then no affinity with the cloth, and consequently, after the copper has been removed by a weak acid, the brown spot,

or figure, remains white, and so is produced the blue ground with white figures. The whole is a most exquisite chemical process from beginning to end, equalled only by the process for China blue, where blue figures are raised on a white ground. This is done by printing on the figure, with fine ground indigo, thickened with paste, and thus by alternate immersions in lime water and copperas liquor, the indigo is dissolved, and fixed on the spots where printed, by a play of chemical affinities similar to those described in blue dipping.

Black and white, and red, or chocolate and white, are made by passing the cloth through red or iron liquor, or their mixture, and after squeezing, while the cloth is open and flat, that is dried in hot flues. Every part of the cloth is thus imbued with mordant. The process is termed "*padding*." It is then printed, with citric acid, (lemon

juice,) thickened with roasted starch. This acid discharges the mordant, and consequently, when dyed as usual, the discharged figures are left white. Logwood is the dye for black, and madder is the dye for reds and chocolates.

The designing of patterns is a distinct branch of art. Usually one or more designers are employed by each establishment. The pattern, when approved, is handed to the engraver, who first makes a sketch of it to fit his roller, and so arranged that the small pattern may cover that without any marked appearance of joining. The engraving is made from the sketch, usually on a small steel die, the pattern or figure being cut into the steel. This die is first hardened, and is then transferred to a similar steel cylinder, called a *mill*. The figures now stand up, or are in relief; the soft steel mill is then hardened, and being applied by powerful pressure, the relief is sunk into a copper roller, from which it is

printed upon the cloth. Such is a brief outline of calico printing. It is a combination of taste, art, mechanical and chemical science, and in all its parts affords a beautiful example of the mutual dependence of art and science on each other ; producing results effective only from their exquisite adaptations."

There are two calico printing establishments in Lowell — the Merrimack, and Hamilton ; and both print over fourteen million yards of calico per year.

A LOWELL WOOLLEN MILL.

But one establishment in this city is appropriated to the manufacture of woollen cloth. This is the Middlesex Company. Their wool comes from the States of Vermont, New Hampshire, New York, Ohio, Pennsylvania,

Illinois, Missouri, and some, recently, from the Territory of Wisconsin. The quantity which is here annually manufactured equals the produce of four hundred thousand sheep. Received into the company's store-room, it is first assorted into eleven different kinds, according to degrees of fineness. The wool is then dyed; after which it passes through the picker. From the picker it is taken successively to the carding, spinning, dressing, and weaving rooms. The cloth is then "burled," as it is called, by which is meant a careful removal of all imperfect threads; and the next processes are those of scouring and fulling. At this stage of the manufacture, the cloth is applied to the "gig," or napping machine, by which the nap is raised; after which it is shorn, passing through the shearing machine from ten to sixteen times. The fine gloss of the cloth is then put upon it by steam; and after another careful examination by the

"linters," it is marked, pressed, measured, done up in papers, boxed, and sent to Boston.

The large mill of this company is seven stories high, one hundred and fifty-eight feet long, and forty-six feet wide. Another, of nearly the same size, is soon to be erected. The quantity of broadcloth and cassimeres annually made, is about one hundred and fourteen thousand yards of the former, and six hundred and twenty thousand yards of the latter. Some of the yearly expenses attending this are as follows: logwood, six thousand dollars; indigo, twenty-two thousand dollars; glue, five thousand dollars; soap, eight thousand dollars; packing boxes, one thousand six hundred dollars; wrapping paper, one thousand dollars. Sales of cloth have amounted to eight hundred thousand dollars per year. The whole importation of cassimeres from England to the United States, in 1844, was

seven thousand pieces; while this company alone manufactured, in that year, more than twenty thousand pieces.

A LOWELL CARPET MILL.

The Carpet Mill of the Lowell Manufacturing Company is the only one in the city. The wool that is here used is all imported from South America or the Mediterranean. Our domestic wools are not coarse enough for this manufacture. Hope is cherished, that by the extensive introduction of the Leicester breed of sheep into the Western States, the necessity of importation may gradually cease. The Lowell Company work up, annually, two thousand bales, averaging one thousand pounds' of unwashed wool to the bale. The cost of this is less than seven cents per pound abroad. It contains fifty per cent. of dirt; in addition

to which the South American wool has from fifteen to twenty-five per cent. of "burrs," and the Mediterranean from five to ten per cent.

In the manufacture, the first process is the washing and burring of the wool. The burring is thoroughly and expeditiously done by a machine, which was invented by a Lowell mechanic, and which has been patented both in this country and in England. The wool is then taken to the combing machine, in order to separate the long fibres of the wool from the short. From the former the worsted yarn is made for the warp. The separation of the long fibres of the wool for manufacturing was first undertaken in Worstead, a market town in the County of Norfolk, England, and hence the name applied to yarn thus made. The short fibres of the wool, technically called the "Noyls," are spun into filling, by the common carding and spinning process. No machine can more effectually and perfectly answer its

end than this combing machine. Superintended by a female operative, who is assisted by a boy and girl, it does the work of many men, and does it better than it could be done by hand. This also is the ingenious invention of Lowell artizans.

As soon as the yarn is cleansed and dyed it is ready for the power loom. No description of this remarkable machine can here be offered, nor are its operations often understood even by those who see them. Placed in a lofty room, built expressly for its use, and supplied with warp and filling yarn, it turns out twenty-five yards per day of ingrain carpeting, of any design, and any colors which may be preferred. It requires the superintendence only of a young woman, who is notified by a bell, which the machine itself rings, of any imperfection of its work. This loom is the invention of E. B. Bigelow, Esq., a native of Massachusetts, and at one time a resident

of Lowell. Fifty of these looms are in constant operation, in the only mill in the world for power-loom carpet weaving. Carpets so woven are firmer, match better, and have a truer selvedge than those woven by hand. By the power loom, a young woman easily does the work, which, by the hand process, required the hard labor of three men.

The Lowell Company are making, at the present time, three hundred thousand yards of carpeting per year. They also make rugs, the tufted, Chenille, and Brussels, employing for this purpose, twenty-five hands, who average twenty-five rugs per day. A power loom for Brussels carpet weaving, is nearly completed, which is the only one in the country, and is the invention, likewise, of Mr. Bigelow. It has been purchased by the Lowell Company, who are forming plans with reference to the erection of a mill, for the extensive use of these looms.

HOURS OF LABOR.

The following table shows the average hours per day of running the mills, throughout the year, on all the Corporations in Lowell:

	<small>h.</small>	<small>m.</small>		<small>h.</small>	<small>m.</small>
January,	11	24	July,	12	45
February,	12	00	August,	12	45
March,	11	52	September,	12	23
April,	13	31	October,	12	10
May,	12	45	November,	11	56
June,	12	45	December,	11	24

In addition to the above, it should be stated, that lamps are never lighted on Saturday evening, and that four holidays are allowed in the year, viz. Fast Day, Fourth of July, Thanksgiving Day, and Christmas Day.

No fact connected with the manufacturing business, has been so often, or so strongly ob-

jected to as this, which appears from the above table, that the average daily time of running the mills is twelve hours and ten minutes. It is no part of the object of this book to defend any thing which may be shown to be wrong, its sole purpose being a careful presentation of facts. Arguments are not needed to prove that toil, if it be continued for this length of time, each day, month after month, and year after year, is excessive, and too much for the tender frames of young women to bear. No one can more sincerely desire, than the writer of this book, that they had more leisure time for mental improvement and social enjoyment. It must be remembered, however, that their work is comparatively light. All the hard processes, not conducted by men, are performed by machines, the movements of which female operatives are required merely to oversee and adjust. And then as to their long confinement and care, there is a

mitigation which, in discussions on this subject, has been almost altogether overlooked, but which is of such vital importance that it merits the most careful attention.

We have given above the hours per day of operating the mills. It must be well understood what this means. These are the hours for running the wheels. It does not follow that all operatives work this number of hours, or are in attendance this number of hours. This is not the case. By a system adjusted to secure this end, by keeping engaged a number of spare hands, by occasional permissions of absence, and by an allowed exchange of work among the girls, the average number of hours in which they are actually employed is not more than ten and a half. They are out to go shopping, to repair their clothes, to take care of themselves in any occasional illness, to see friends visiting the city, to call on sick friends here; nor are reasonable requests of this kind

refused. Many of these girls, moreover, in the course of each year, take a vacation of a few weeks, to return to their homes. In these absences the work of the mill is not suspended. The wheels continue their revolutions for the prescribed number of hours. The processes are temporarily superintended by other hands. To suppose that every operative is on duty just as long as the machinery is in motion, is an error of the most deceptive kind. Yet this fallacy has been assumed in almost all the discussions on this subject. The fact has been overlooked of the great number of absences from the mills. These absences reduce the average of work-hours for the girls to the number just stated — ten and a half. This is not a mere assertion. It is a carefully ascertained, and well established fact, in verification of which proof will now be submitted.

Each overseer keeps a record of all the time his hands are employed, in days and

quarter of days. These records, in one mill in the city, have been subjected to a thorough analysis. The space of time over which this analysis has been carried is one year. In Boott Mill, No. 1, there are one hundred and six girls who have been employed one year, working by the job. This is the whole number in that mill who are thus employed and have worked that time ; and their time record gives the following results :

In the Weaving room 56 girls worked 14,097 days

Do. Dressing	do. 17	do.	4,403 $\frac{1}{4}$ do.
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Do. Spinning	do. 21	do.	5,615 do.
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Do. Card	do. 12	do.	3,536 $\frac{3}{4}$ do.
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Total,	. .	106 girls working	27,652 do.
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Average number of days per year to each girl, two hundred and sixty and eighty-six one hundredths. Average number of hours per day, to each girl, ten hours and eight minutes.

Beside the one hundred and six girls who work by the job, there are in that mill thirty-

one girls who work by the day. The time record of these girls has been examined for the space of the last two months; and it is found that the average number of hours which they have worked per day, in that time, is ten hours and forty-two minutes.

In that same mill are employed twenty-nine other girls, at work by the job; but as they have been employed less than one year, no examination has been made of their number of hours. Fourteen other females are connected with that mill, in readiness to be employed in starting new machinery, put in a room recently finished in the basement; and these, together with two female overseers and four sweepers, whose time has not been averaged, but who, it is well known, work no longer than the others, are all the females that are employed in that mill, viz. one hundred and eighty-six.

The result of the whole is, as we before

stated, that the average number of per diem hours is less than ten and a half. In the above estimate, the absences of the girls from the mills, when they put their work in the care of those who may be disposed mutually to relieve one another, are not taken into the account. No computation of the extent of such absences can be made. It is well known, however, to be considerable, and would still further reduce the average above named.

In connection with this general topic, one or two other points remain to be considered. It happens occasionally, in the various processes of the manufacture, that one portion of the work runs ahead of another; requiring, for an equalization, the running of some extra hours. This takes place only in the winter season, when the lamps, never in the whole mill, but only in one or two of its rooms, are kept burning till nine or ten o'clock. On no Corporation is this done, but as a rare excep-

tion to the general rules of the mill, while in most mills it is not done at all. Thus, during the past winter, when the temptations to extra work, through great profits, were as strong as ever, in the majority of the mills, the wheels were not run, in any instance, after half-past seven o'clock. It occasionally happens, again, that some ambitious girls, finding their health and strength sufficient, and stimulated by the hope of greater gain, undertake extra work. In relation, however, to both of these cases, of extra hours and extra work, the labor performed is always voluntary. No girl is required to undertake it. The young woman, who is able, is generally willing to engage in it, as she draws the pay, to the extent of the extra work, of two girls, while she incurs the expense of the board of but one.

Having noticed the occasions of voluntary extra work, it is but just to allude to an exigency, which occurs every season, when work

is suspended. Eighteen of the twenty-seven cotton mills in the city are situated on the river side, and once or twice in each year are obliged to suspend parts of their works, sometimes for days together, in consequence of back water. In such cases, the pay of the board of the girls is continued, though they render no work.

Thus we have taken one mill in the city, and presented the average number of hours in which its operatives are actually employed, and have noticed the slight variations, one way and the other, which are liable from time to time to occur. It only remains to be added, that there is no reason to think that an examination of the time books of any other mill, would be attended with any different results. Under the operation of this system there are, undoubtedly, cases where the health of operatives, either from natural feebleness of constitution, or from an over-excited ambition for

gain, is insufficient for the work and is broken down. Such instances will occur in almost all employments that can be named. Every one knows of females who cannot stand the hard work of domestic service, of the tailors' shops, of the milliners' rooms. As long as our young country women are obliged to toil, all hearts must desire that their toil be as light as possible, and gladly welcome any reform by which hours of labor may be abridged. How far there is a system here pursued of oppression and excessive labor, the reader can judge for himself. He will guard against the fallacy and injustice of supposing that the same hours of service are demanded alike of human hands and iron wheels. He knows of many a store where a prosperous business is done, which is opened at sunrise in the morning, and is not closed until ten o'clock at night. It does not follow that all hands there employed are kept on the stretch of business, month after month,

and year after year, for sixteen hours a day. True, the store is opened, and the goods are sold, and the process is continually going on; but not all the hours by the same hands. The store has its complement of clerks and salesmen—this performs one operation, that performs another; they supply each other's places and assist one another, and the average of their work may be no more than falls to the ordinary lot of other toiling classes. An average like this we have endeavored to establish in the case of female factory operatives. The actual effect of their work on their health will be seen by facts hereafter to be presented.

WAGES.

Precise statements will hereafter be given of the average pay of male and female hands.

Only some general views of this subject will now be offered. Operatives entering the mill at once receive pay. In other arts they are obliged to go through some expensive process of learning. The young woman from the country, employed at first as a spare hand, and a pupil to the business, receives fifty-five cents per week besides her board. Thus the companies educate nearly all their hands, and as these hands are entirely changed every few years, they have at all times thousands in their pay as mere learners. The female operative will, in a few months, earn four and six pence, one dollar, one dollar and a half, per week, according to her dexterity and diligence. Hands are never paid by barter, store orders, or the company's goods. Every month they are paid by notes of the Railroad Bank, convertible at any hour into gold and silver. From the time that the first mill was erected in Lowell to the present day, no operatives

employed in the mills have lost a sixpence of their just earnings, through any inability or neglect of the Corporations. While the average pay of all female operatives is, at the present time, about one dollar and ninety-three cents per week, beside board, instances are not uncommon of their earning three and four dollars per week. On the June pay roll of fifty girls, the author counted up the names of twenty-four who received four dollars and seventy-five cents per week, beside board; and this without either extra hours or extra work. This, however, is given as an unusual case. It will hereafter be seen how frequently the prospect of greater gain, draws young women, who have kept country schools, to working in the mills in Lowell. As another evidence of their great earnings, it may be stated, that it is estimated that the factory girls of this city have, in round numbers, one hundred thousand dollars in the Lowell Insti-

tution for Savings. Cases like the following, quoted from the discharge book, kept in one of the Corporation counting-rooms, might be presented in great numbers.

"*Sept. 14, 1844.* Eunice * * * worked twelve months, discharged to go home. She left home in * * * Me., just one year since, and promised to return in a year. She has clothed herself well, and carries with her seventy-five dollars, net savings of her year's work: has lost three days from all causes."

"*Oct. 14.* Mary * * * worked nine years, discharged to go on Lowell Corporation. She and her sister, who left a short time since to be married, and who had worked for us over ten years, have never lost so much time as they have made up by extra work. They are Irish. Their father died about nine years ago. They have since entirely supported their mother, having built her a house, costing six hundred dollars, in which they have kept

house together. They own a pew, which cost them one hundred and twenty-five dollars, and they have from one hundred to two hundred dollars each at interest."

"*June 14, 1845.* Harriet * * * one year, discharged to go home. This is her first visit to Lowell, has never worked in any factory before, was not well when she came, has lost considerable time, has clothed herself well, and carries home with her thirty dollars."

It may not be out of place to give here the pay days on the Corporations.

Appleton Co. week after last Saturday in each month.

Boott " " first "

Lowell Bleaching Co. Wed. after last Sat. each month.

Hamilton Co. week after last Sat. but one each month.

Lowell Co. week after last Saturday in each month.

Locks & Canals Co. Tues. after last Sat. each month.

Lawrence Co. week after second Sat. in each month.

Massachusetts Co. week after third Sat. in each month.

Merrimack Co. the Saturday before 16th of each month.

Middlesex Co. Friday and Saturday after the end of the month; but if the month ends on Tuesday, Wednesday or Thursday, then on the Friday and Saturday of the next week.

Suffolk Co. week after last Saturday in each month.
Tremont Co. week after last Saturday in each month.

PROVISIONS FOR THE COMFORT AND HEALTH OF THE OPERATIVES.

From the boarding-houses to the mills are laid side-walks of brick and stone, for the comfort of the operatives in wet and muddy walking. The mills themselves are kept of a uniform temperature, being heated in cold weather either by steam, or by hot-air furnaces. The rooms are lofty, are well ventilated, and are kept as free from dust as is possible, while the machinery is carefully boxed, or otherwise secured against accidents. The magnificent provision made by the Corporations for a hospital for sick operatives, will be particularly described hereafter.

On no point are such conflicting statements put forth as on that of the health of the opera-

tives. It is extremely difficult to arrive at the exact facts of the case. Any comparison between their health in Lowell, and their health in their country homes, or between the health of the operatives, and the health of females confined to other occupations, milliners, and sempstresses, for example, can be only general, and destitute of conclusive precision. Replies from the operatives themselves, to questions submitted to them, bearing on this point, will be hereafter presented, and will furnish one important element for the solution of the problem. Another element is, a comparison of bills of mortality in Lowell, with those of other places. Such a comparison will here be made between the yearly number of deaths in Providence, Salem, and Worcester, and the yearly number in this city. These places have been selected because they are near the size of Lowell, and present the variety of a city and rural population.

The population of Providence was twenty-three thousand one hundred and seventy-two, in 1840, and it is supposed that it did not vary much from that in the two following years. The average for these three years may be stated at twenty-three thousand five hundred. The number of deaths was as follows: In 1840, five hundred and fifty-two; in 1841, six hundred and seventy-seven; in 1842, seven hundred and two, — averaging in three years five hundred and seventy-seven per year.

The population of Salem was fifteen thousand and eighty-two, in 1840, and it is supposed to be sixteen thousand at the present time. The average for five years may be taken at fifteen thousand five hundred. Deaths in 1840, three hundred and fourteen; in 1841, two hundred and eighty-two; in 1842, three hundred and nineteen; in 1843, two hundred and seventy; in 1844, two hundred and sixty-

one,—averaging in five years two hundred and eighty-nine per year.

The population of Worcester was seven thousand four hundred and ninety-seven, in 1840, and it is supposed to be ten thousand at the present time. We will assume the average for the five years to be eight thousand five hundred. Deaths in 1840, one hundred and sixty-one; in 1841, one hundred and twenty-four; in 1842, one hundred and sixty; in 1843, one hundred and sixty-eight; in 1844, two hundred and eight,—averaging in five years one hundred and sixty-four per year.

The population of Lowell was twenty thousand nine hundred and eighty-one in 1840, and was twenty-five thousand one hundred and sixty-three in 1844. The average for the five years may be stated at twenty-three thousand. Deaths in 1840, four hundred and twenty-six; in 1841, four hundred and fifty-six; in 1842, four hundred and seventy-three;

in 1843, three hundred sixty-three; in 1844, three hundred and sixty-two, — averaging in five years four hundred and sixteen per year.

Dividing the average of population by the average of deaths, we have the following results:—Deaths to the population in Providence, one in forty-one; in Salem, one in fifty-four; in Worcester, one in fifty-two; in Lowell, one in fifty-seven, — being an advantage in comparison with the other places, of fifteen, three, and five per cent. in favor of the latter city.

Still another aid in forming an opinion as to the degree of health enjoyed by the operatives of Lowell, is the testimony of the physicians of this city. Full and decided testimony by them has been repeatedly given, and has been, from time to time, published. Some references to this will be now made. Dr. Elisha Bartlett, before named as the first Mayor of this city, for more than twelve years a resident

and practising Physician in Lowell, and widely known as an eminent lecturer and writer in his profession, in a pamphlet published by him in 1841, on the "Character and Condition of the Females employed in the Lowell Mills," has the following words, the italicised sentences being thus marked by the Dr. himself:—

"The general and comparative good health of the girls employed in the mills here, and their freedom from serious disease, have long been subjects of common remark among our most intelligent and experienced physicians. *The manufacturing population of this city is the healthiest portion of the population,* and there is no reason why this should not be the case. They are but little exposed to many of the strongest and most prolific causes of disease, and very many of the circumstances which surround and act upon them are of the most favorable hygienic character. They are regular in all their habits. They are early up

in the morning, and early to bed at night. Their fare is plain, substantial, and good, and their labor is sufficiently active, and sufficiently light to avoid the evils arising from the two extremes of indolence and over-exertion. They are but little exposed to the sudden vicissitudes, and to the excessive heats and colds of the seasons, and they are very generally free from anxious and depressing cares."—

Page 13.

Upon sundry petitions sent to the Massachusetts House of Representatives, at the last session of the Legislature, praying for a reduction of the hours of labor, a report was made by the special committee, to whom these petitions were referred, and was published by order of the House, March 12, 1845. From this report we quote the following:—

“It is the opinion of Dr. Kimball, an eminent Physician of Lowell, with whom the committee had an interview, that there is less

sickness among the persons at work in the mills than there is among those who do not work in the mills; and that there is less sickness now than there was several years ago, when the number was much less than at present. This we understood to be, also, the opinion of the City Physician, Dr. Wells." — *Page 11.*

In relation to the general subject here under consideration, the experience of the matrons of the boarding-houses is of much value. Frequent cases of failure of health, if they exist, must of course be known by them; and measures have accordingly been taken to arrive at the results of their observation. Answers to questions proposed to them will be presented hereafter, and to these results, uniform, decided, and entirely consentaneous with the other points of evidence, bearing on this subject, the reader is requested to turn.

Notwithstanding all this, an impression is

sometimes entertained, among those who are strangers to the facts of the case, that the health of many girls is broken down by long confinement and excessive toil, who, finding their strength failing in Lowell, return to their homes, and leave no memorials here of their sickness and death. Assertions of this kind have been publicly made, not always, we may fear, in a spirit, or with motives most favorable to the exact truth. That there is sickness among the seven thousand factory girls of Lowell, — cases of prostration of strength, and incapacity to bear the fatigues of confinement and toil, it would, of course, be absurd to deny. Some come with the seeds of disease already growing within them, and they find that their constitutions would soon break down by continued labor. Others, freed from the guardianship of parental care, are greatly imprudent in their diet, or dress, or exposure to cold and damp air. It will not be expected

but that others still, will feel that devotion to fashion which is characteristic of the sex, and will contract a serious, perhaps fatal cold, through a neglect to provide themselves with a warm shawl, or a pair of stout shoes. Moreover, there is something in the monotony of a mill-life which seems to beget a morbid hankering for little artificial stimulants of the appetite, and the tone of the stomach is frequently deranged by a foolish and expensive patronage of the confectioner. Painful instances, likewise, have occurred, where the hope of relieving an embarrassed parent, or of helping a struggling brother through college, excited too strongly by the ability of earning fifteen or twenty dollars per month, has overtasked the energies of an ambitious young woman, and she has sunk beneath her self-imposed burden. To all these cases should be added a too frequent attendance, in times of religious excitement especially, upon evening

meetings, at the churches or vestries, to which many are drawn, partly through a social influence, and partly through a devout one of the most commendable kind. After the work of the day, the close air of the conference and lecture room, for three or four evenings a week, must be highly prejudicial to health; and it is well that there is an increasing conviction of the importance of attention to this subject, on the part of clergymen and others, who have the direction of the meetings referred to.

These causes of ill health among the factory operatives in Lowell are certainly at work; and it is notorious that they produce much the larger amount of sickness which here exists. But in the case of a healthy, judicious, and prudent young woman, it would be difficult to prove that there is any thing in the work which she here does, or in the general life which she here leads, which is more

unfavorable to health than the employment which is given to thousands of females in our large cities, in the establishments of milliners, tailors, bookbinders, and others, where females are at work. A walk through our mills must convince one, by the generally healthy and robust appearance of the girls, that their condition is not inferior, in this respect, to other working classes of their sex. Certainly, if multitudes of them went home to sicken and die, equal multitudes of their sisters and neighbors would not be very eager to take the fatal stations which were deserted. The united testimony of these girls themselves, of the matrons of their boarding-houses, and of the physicians of the city, can be reconciled with only one conclusion, and that only the prejudiced and designing will resist.

MORAL POLICE OF THE CORPORATIONS.

It has been seen what a large amount of capital is here invested, and what manifold and extensive operations this capital sets in motion. The productiveness of these works depends upon one primary and indispensable condition—the existence of an industrious, sober, orderly, and moral class of operatives. Without this, the mills in Lowell would be worthless. Profits would be absorbed by cases of irregularity, carelessness, and neglect; while the existence of any great moral exposure in Lowell would cut off the supply of help from the virtuous homesteads of the country. Public morals and private interests, identical in all places, are here seen to be linked together in an indissoluble connection. Accordingly, the sagacity of self-interest, as well as more disinterested considerations, has led to the adoption of a strict system of moral police.

Before we proceed to notice the details of this system, there is one consideration bearing upon the character of our operatives, which must all the while be borne in mind. *We have no permanent factory population.* This is the wide gulf which separates the English manufacturing towns from Lowell. Only a very few of our operatives have their homes in this city. The most of them come from the distant interior of the country, as will be proved by statistical facts which will be presented in a subsequent chapter.

To the general fact, here noticed, should be added another, of scarcely less importance to a just comprehension of this subject,—*the female operatives in Lowell do not work, on an average, more than four and a half years in the factories.* They then return to their homes, and their places are taken by their sisters, or by other female friends from their neighborhood. Returns will hereafter be given

which will establish the fact of the average above named.

Here, then, we have two important elements of difference between English and American operatives. The former are resident operatives, and are operatives for life, and constitute a permanent, dependent factory caste. The latter come from distant homes, to which in a few years they return, to be the wives of the farmers and mechanics of the country towns and villages. The English visiter to Lowell, when he finds it so hard to understand why American operatives are so superior to those of Leeds and Manchester, will do well to remember what a different class of females we have here to *begin* with — girls well educated in virtuous rural homes ; nor must the Lowell manufacturer forget, that we forfeit the distinction, from that moment, when we cease to obtain such girls as the operatives of the city.

To obtain this constant importation of female hands from the country, it is necessary to secure *the moral protection of their characters while they are resident in Lowell*. This, therefore, is the chief object of that moral police referred to, some details of which will now be given.

It should be stated, in the outset, that no persons are employed on the Corporations who are addicted to intemperance, or who are known to be guilty of any immoralities of conduct. As the parent of all other vices, intemperance is most carefully excluded. Absolute freedom from intoxicating liquors is understood, throughout the city, to be a prerequisite to obtaining employment in the mills, and any person known to be addicted to their use is at once dismissed. This point has not received the attention, from writers upon the moral condition of Lowell, which it deserves; and we are surprised that the English travel-

ler and divine, Dr. Scoresby, in his recent book upon Lowell, has given no more notice to this subject. A more strictly and universally temperate class of persons cannot be found, than the nine thousand operatives of this city ; and the fact is as well known to all others living here, as it is of some honest pride among themselves. In relation to other immoralities, it may be stated, that the suspicion of criminal conduct, association with suspected persons, and general and habitual light behavior and conversation, are regarded as sufficient reasons for dismissals, and for which delinquent operatives are discharged.

In respect to discharged operatives, there is a system observed, of such an effectual and salutary operation, that it deserves to be minutely described.

Any person wishing to leave a mill, is at liberty to do so, at any time, after giving a fortnight's notice. The operative so leaving,

if of good character, and having worked a year, is entitled, as a matter of right, to an honorable discharge, made out after a printed form, with which every counting-room is supplied. That form is as follows :

Mr. or Miss ———, has been employed by the ——— Manufacturing Company, in a ——— Room, — years — months, and is honorably discharged.

—————, *Superintendent.*

LOWELL, ———

This discharge is a letter of recommendation to any other mill in the city, and not without its influence in procuring employment in any other mill in New England. A record of all such discharges is made in each counting-room, in a book kept for that purpose.

So much for honorable discharges. Those dishonorable have another treatment. The

names of all persons dismissed for bad conduct, or who leave the mill irregularly, are also entered in a book kept for that purpose, and these names are sent to all the counting-rooms of the city, and are there entered on *their* books. *Such persons obtain no more employment throughout the city.* The question is put to each applicant, "Have you worked before in the city, and if so, where is your discharge?" If no discharge be presented, an inquiry of the applicant's name will enable the superintendent to know whether that name stands on his book of dishonorable discharges, and he is thus saved from taking in a corrupt or unworthy hand. This system, which has been in operation in Lowell from the beginning, is of great and important effect in driving unworthy persons from our city, and in preserving the high character of our operatives.

A record book, of honorable and dishonora-

ble discharges, kept on one of the Corporations, and running through the years 1836, 1837, 1838, and a part of 1839, is now lying before the author; a few quotations from which will enable the reader to understand still better the operation of the above system. Opening it at random, a few quotations will be given, first of honorable discharges, transcribing, for obvious reasons, only the Christian name of the operative; and as these quotations record the length of time in which the operative has worked, the reader will be here furnished with some incidental and exact evidence bearing upon that point.

"1838, *March* 10. Julia ——. From No. 5 weaving room; worked three years; discharged to go home.

March 12. Hannah ——. From No. 3, spinning room; worked five years; discharged to go on the Boott.

March 13. Elizabeth ——. From No. 3,

carding room ; worked twelve months ; to go home ; will return probably.

March 13. Acsah ——. From No. 5, weaving room ; worked three years ; to go home.

March 15. Nancy ——. From No. 2, weaving room ; worked twenty-seven months ; to go home.

March 16. Eliza ——. From No. 5, lower weaving room ; worked fourteen months ; to go home.

March 19. Lucy ——. From No. 1, weaving room ; worked one week ; not wanted ; to go on the Boott.

March 19. Lucy ——. From No. 1, dressing room ; worked nine months ; not wanted.

March 20. Otis ——. From repair shop, blacksmith ; worked twelve months.

March 21. Almira ——. From No. 5,

lower weaving room ; worked three years ; to go home.

March 21. Nathaniel ——. From No. 3, spinning room ; worked three months ; discontented with wages.

March 21. William ——. Worked ten months ; cannot stand it.

March 21. Lucy ——. From No. 1, spinning room ; worked ten months ; not wanted.

March 24. Luretta ——. From No. 4, spinning room ; worked one month.

March 24. Catharine ——. No. 4, cloth room ; worked twenty-five months ; to go home.

March 26. Elizabeth ——. From No. 1, spinning room ; worked twelve months ; to go on the Tremont."

The above is the unselected and connected record of one page.

From the record of dishonorable discharges,

a connected page, opened at random, will be quoted, only with the same omission as before. The reader will notice the kind of offences recorded, and, from the dates, will be able to judge how frequently such cases occur.

“1838, *Dec.* 31. Ann ——. No. 4, weaving room; discharged for altering her looms and thinning her cloth.

1839, *Jan.* 2. Lydia ——. No. 1, spinning room; obtained an honorable discharge by false pretences. Her name has been sent round to the other Corporations as a thief and a liar.

Jan. 3. Harriet —— and Judith ——. From No. 4, spinning room, and No. 5, weaving room; discharged as worthless characters.

Jan. 9. Lydia ——. From No. 2, spinning room; left irregularly; name sent round.

Feb. 15. Hadassah ——. From No. 3, lower weaving room; discharged for improper conduct — stealing from Mrs. ——.

March 8. Abby ——. No. 2, spinning room ; discharged for improper conduct.

March 14. Ann —, No. 2, spinning room ; discharged for reading in the mill ; gave her a line stating the facts.

March 26. Harriet —, No. 4, carding room ; Laura —, No. 4, spinning room ; Ellen —, No. 1, carding room ; George —, repair shop—all discharged for improper conduct.

March 29. Martha —, No. 2, spinning room ; Apphia —, No. 2, spinning room ; left irregularly, and names sent round.

April 8. Emily —. No. 5, carding room ; discharged for profanity, and sundry other misdemeanors. Name sent round."

It must be unnecessary to accompany the above quotations with any comment. The facts, selected with as much impartiality as is possible, speak for themselves. We have here sixteen honorable discharges given in sixteen

days; and fourteen dishonorable discharges given in three months and four days, and of the offences specified, five of them indicate no deep moral delinquency. The care with which these records are kept is creditable to the officers of the Corporation, as the results of the records are honorable to the characters of their operatives.

Any description of the moral care, studied by the Corporations, would be defective if it omitted a reference to the overseers. Every room in every mill has its first and second overseer. The former, or, in his absence, the latter, has the entire care of the room, taking in such operatives as he wants for the work of the room, assigning to them their employment, superintending each process, directing the repairs of disordered machinery, giving answers to questions of advice, and granting permissions of absence. At his small desk, near the door, where he can see all who go out or

come in, the overseer may generally be found; and he is held responsible for the good order, propriety of conduct, and attention to business, of the operatives of that room. Hence, this is a post of much importance, and the good management of the mill is almost wholly dependent upon the character of its overseers. It is for this reason that peculiar care is exercised in their appointment. Raw hands, and of unknown characters, are never placed in this office. It is attained only by those who have either served a regular apprenticeship as machinists in the Repair Shop, or have become well known and well tried, as third hands, and assistant overseers. It is a post for which there are always many applicants, the pay being two dollars a day, with a good house, owned by the company, and rented at the reduced charge before noticed. The overseers are almost universally married men, with families; and as a body, numbering

about one hundred and eighty, in all, are among the most permanent residents, and most trustworthy and valuable citizens of the place. A large number of them are members of our churches, and are often chosen as council men in the city government, and representatives in the State legislature. The guiding and salutary influence which they exert over the operatives, is one of the most essential parts of the moral machinery of the mills.

As closely connected with the foregoing statements, the following note from a superintendent may be here republished, which was sent in reply to questions proposed to him in the Spring of 1841:—

“DEAR SIR:—

I employ in our mills, and in the various departments connected with them, thirty overseers, and as many second overseers. My overseers are married men, with families, with

a single exception, and even he has engaged a tenement, and is to be married soon. Our second overseers are younger men, but upwards of twenty of them are married, and several others are soon to be married. Sixteen of our overseers are members of some regular church, and four of them are deacons. Ten of our second overseers are also members of the church, and one of them is the superintendent of a Sunday School. I have no hesitation in saying that in all the sterling requisites of character, in native intelligence, and practical good sense, in sound morality, and as active, useful, and exemplary citizens, they may, as a class, safely challenge comparison with any class in our community. I know not, among them all, an intemperate man, nor, at this time, even what is called a moderate drinker.

Yours truly,

Lowell, May 10, 1841."

Still another source of trust which a Corporation has, for the good character of its operatives, is the moral control which they have over one another. Of course this control would be nothing among a generally corrupt and degraded class. But among virtuous and high-minded young women, who feel that they have the keeping of their characters, and that any stain upon their associates brings reproach upon themselves, the power of opinion becomes an ever-present, and ever-active restraint. A girl, *suspected* of immoralities, or serious improprieties of conduct, at once loses caste. Her fellow-boarders will at once leave the house, if the keeper does not dismiss the offender. In self-protection, therefore, the matron is obliged to put the offender away. Nor will her former companions walk with, or work with her; till at length, finding herself everywhere talked about, and pointed at, and shunned, she is obliged to relieve her fellow-

operatives of a presence which they feel brings disgrace. From this power of opinion, there is no appeal ; and as long as it is exerted in favor of propriety of behavior and purity of life, it is one of the most active and effectual safeguards of character.

It may not be out of place to present here the regulations, which are observed alike on all the Corporations, which are given to the operatives when they are first employed, and are posted up conspicuously in all the mills.

They are as follows : —

*“ Regulations to be observed by all persons employed by the
— Manufacturing Company, in the Factories.*

Every overseer is required to be punctual himself, and to see that those employed under him are so.

The overseers may, at their discretion, grant leave of absence to those employed under them, when there are sufficient spare hands in the room to supply their place ; but when there are not sufficient spare hands, they are not allowed to grant leave of absence unless in cases of absolute necessity.

All persons are required to observe the regulations of the room in which they are employed. They are not allowed to be absent from their work without the consent of their overseer, except in case of sickness, and then they are required to send him word of the cause of their absence.

All persons are required to board in one of the boarding houses belonging to the company, and conform to the regulations of the house in which they board.

All persons are required to be constant in attendance on public worship, at one of the regular places of worship in this place.

Persons who do not comply with the above regulations will not be employed by the company.

Persons entering the employment of the company, are considered as engaging to work one year.

All persons intending to leave the employment of the company, are required to give notice of the same to their overseer, at least two weeks previous to the time of leaving.

Any one who shall take from the mills, or the yard, any yarn, cloth, or other article belonging to the company, will be considered guilty of **STEALING** — and prosecuted accordingly.

The above regulations are considered part of the contract with all persons entering the employment of the — **MANUFACTURING COMPANY**. All persons who shall have complied with them, on leaving the employment of the company, shall be entitled to an honorable discharge, which will serve as a recommendation to any of the factories in Lowell. No one who shall not have complied with them will be entitled to such a discharge.

— — —, Agent."

BOARDING-HOUSE STATISTICS.

It has been before stated that in many cases the keepers of the boarding-houses retain their

places for eight, ten, or twelve years. Standing in the place of parents to their girls, their future welfare is a matter of deep interest to these matrons, and frequently they have some knowledge of the after-fortunes of their boarders, through sisters and neighbors, who have succeeded them in the mills. It, hence, appeared probable, that by extensive and careful inquiries of the matrons, important facts might be collected in respect to the health and character of their girls, while boarders, and of their honorable standing in life, after they had retired from Lowell. For this purpose a series of questions was prepared, copies of which were handed to three or four matrons on each Corporation, and twenty-one of their written replies have been returned to the author, and will here be subjoined. There was no selection of houses from which to seek returns, and there is no selection of returns so as to present only favorable cases. The in-

quiries were made under the direction of the author, and partly by himself personally ; and with the single exception of a preference for those matrons who had kept a boarding-house for several years, as returns from inexperienced persons would here be of no value, the results below presented are as fair and impartial as can be procured.

The questions were as follows : —

1. How long have you kept a boarding-house on this Corporation ?
2. How many boarders have you now ?
3. How many boarders have you had in all since you kept the house ?
4. How many of your girls have, to your knowledge, been married ?
5. How many have died ?
6. How many have gone home sick ?
7. How many of your boarders have been dismissed from the Corporation for bad conduct ?

8. Have you ever had much sickness in your house?

9. How many cases do you think, which have lasted a week, and have had the care of a physician?

The replies will be copied exactly as they were returned.

CASE 1.— Have kept a boarding-house on the Appleton four and a half years; have now nineteen boarders; have had probably, in all, a hundred and fifty; knows of ten of these that have been married; not one of her girls, while a boarder, has died; three have gone home sick; none of her boarders have been dismissed for bad conduct; have had but little sickness; perhaps eight cases that have lasted a week, and had the care of a physician.

CASE 2.— Have kept a boarding-house on the Hamilton nineteen years; have now six-

teen boarders ; have had twenty-five, upon an average, all the time ; know of over two hundred of my girls that have been married, having kept an account of them till within two years past ; only one of my boarders has died in my house ; fifteen have gone home sick ; one of my boarders has been dismissed from the Corporation for bad conduct ; never have had much sickness ; perhaps ten cases corresponding to the description in Question 9.

CASE 3. — Have kept a boarding-house on the Lowell Corporation eleven years ; have now twenty-five boarders ; have had, perhaps, two hundred in all ; know of as many as fifty of them that have been married ; not one has died in my house ; none have ever been sent home sick ; one of my boarders was turned off from the Corporation for bad conduct ; have had very little sickness in my house ;

can remember but eleven cases that have lasted a week and been attended by a physician.

CASE 4. — Have kept a boarding-house on the Merrimack for twelve years; have now sixteen boarders; presume I have had four hundred in all; can remember eighty of these that have been married; none have died at my house; have heard of the death of eleven; three have gone home sick; none dismissed from my house for bad conduct; have had but little sickness in my house, perhaps ten or twelve cases that have lasted a week.

CASE 5. — Have kept a boarding-house on the Appleton, eight years and seven months; have now sixteen boarders; cannot tell how many I have had in all, perhaps two hundred and seventy-five; know of forty-five of my girls that have been married; eight have died;

twelve have gone home sick ; none have been dismissed from my house for bad conduct ; have had much sickness in my house, should think as many as twenty cases lasting a week.

CASE 6. — Have kept a boarding-house on the Hamilton for nineteen years ; have now nineteen boarders ; probably have had three hundred in all ; can recollect only nineteen of my girls that have been married ; two have died from my house ; twelve have gone home sick ; three have been dismissed for bad conduct ; never have had much sickness ; can remember fourteen cases lasting a week.

CASE 7. — Have been matron on the Merrimack nine years ; have now sixteen boarders ; have had two hundred and fifteen since I kept the house ; know of sixty of my girls who have been married ; three have died in my house, and have heard of the death of six

others ; seven have gone home sick ; none have been dismissed from my house for bad conduct ; never have had much sickness, not more than seven or eight cases lasting a week.

CASE 8. — Have kept a boarding-house on the Appleton, four years and six months ; have now seventeen boarders ; have had a hundred and forty-five in all ; know of fourteen who have been married ; none have died from my house ; two have gone home sick ; three have been dismissed from the Corporation ; have had no sickness in my house ; not a case lasting a week.

CASE 9. — Have kept a boarding-house on the Lawrence nine and a half years ; have twenty-eight boarders now ; have had four hundred and fifty or five hundred in all ; should judge that as many as a hundred and

twenty-five of these had been married; there has been no death in this tenement, but have heard of the death of twenty-five who left this tenement in good health; three have gone home sick; nine have been dismissed from my house for bad conduct; never have had much sickness, no one considered as dangerously ill; only three that have had the care of a physician; most sickness has been occasioned by measles

CASE 10. — Have kept a boarding-house on the Boott for nine years; have thirty-four boarders now; have had as many as five hundred in all; probably a fifth of these have been married; there has been no death in my house; three have gone home sick, and one of these died in a few months after; two have been dismissed for bad conduct: never have had much sickness, and it is three years since a physician has been in the house; perhaps

have had, in the nine years, twelve cases lasting a week.

CASE 11. — Have kept a boarding-house on the Lawrence seven years ; have now twenty-seven boarders ; have had in all a hundred and twenty-five ; twenty-seven of my girls have been married ; two have died ; eight gone home sick ; three dismissed from the house ; have never had much sickness ; a dozen cases lasting a week.

CASE 12. — Have kept a boarding-house on the Suffolk and Lawrence ten years ; have had an average of sixteen girls ; two hundred in all ; fifty married, including every one of my first set of girls ; three turned out of my house ; four only that laid on a bed of sickness in my house ; no death in my house, and but one who went home sick, to die, and she was consumptive before she came here ; never

have heard of any other of my girls who have died.

CASE 13. — Kept house on Suffolk fourteen years; have now nineteen boarders; have had a hundred and fifty-seven in all; know of eight who are married; three have died, but not one in my house; three gone home sick; three dismissed for bad conduct; never have had much sickness; perhaps five cases, lasting a week.

CASE 14. — Kept house on Tremont three years and seven months; twenty-seven girls now; one hundred and thirty-five in all; know of none of them who have been married; none of them have died; ten have gone home sick; three have been dismissed from my house; have had considerable sickness, nine or ten cases, lasting a week.

CASE 15. — Kept a boarding-house on Tremont eight years and eight months; eighteen boarders now; cannot precisely say how many I have had in all; know of forty-three who have been married; none have died; none have gone home sick; three dismissed from the house; not much sickness; seven cases, lasting a week.

CASE 16.— Kept house on Lawrence ten years; twenty-seven boarders now; five hundred in all; one married at the house, about fifty married in all; none have died; ten gone home sick; two dismissed for bad conduct; very little sickness; think of only five who have had the care of a physician.

CASE 17.— Kept house on Merrimack six years; twenty-eight boarders now; two hundred in all; seventy-five have been married, having kept account; two have died; four

gone home sick ; three dismissed for bad conduct ; very little sickness ; four or five cases, lasting a week.

CASE 18. — Kept house on Lowell Corporation nine years ; twenty-five boarders now ; perhaps five hundred in all ; know of but twelve who have been married ; three have died ; one gone home sick ; none dismissed for bad conduct ; very little sickness ; seven cases needing a physician.

CASE 19. — Kept house on Appleton five years ; twenty boarders now ; one hundred and thirty in all ; fifteen have been married ; none have died ; three gone home sick ; not one dismissed for bad conduct ; not a great deal of sickness ; ten cases lasting a week.

CASE 20. — Kept house on Suffolk six years ; twenty-nine boarders now ; two hun-

dred and twenty-nine in all ; thirty-nine have been married ; five died, all went home before they died ; six have gone home sick ; three dismissed for bad conduct ; have had considerable sickness ; twelve cases, lasting a week.

CASE 21. — Kept house on Lowell Corporation sixteen years ; twenty-six boarders now ; five or six hundred in all ; can count up a hundred and seven who have been married ; two have died in my house ; three have gone home sick ; one turned out of my house for bad conduct ; have had considerable sickness ; twenty cases corresponding to description in question nine.

In respect to the foregoing statistics, it must doubtless be remembered, that some of the numbers mentioned are mere guesses ; some are the result of imperfect recollection ; while some may have been unintentionally, but yet naturally, affected by a desire, on the part of

the matron, to speak well of her house. And yet it is confidently believed that these are as deliberate and carefully formed estimates as could be made. Whatever uncertainty attaches to them belongs almost entirely to the larger numbers given, which, in the above returns, are of the least importance. In respect to the smaller numbers, those of cases of sickness, and bad conduct especially, the chances of error were fewer, and the information was more precise and certain. It should be added, moreover, that several of these matrons are personally known to the author as women of bright minds, generally exact information, and who are remarkable for the interest they feel in the girls who have boarded in their houses. Their returns may be confidently received as exact.

But, after making all reasonable abatements, it is not easy to resist the conclusion, that female factory operatives generally enjoy

at least a fair average of health, and possess, for the most part, reputable characters, and encounter no very great difficulties in the way of a marriage settlement in life. The above twenty-one cases report six thousand seven hundred and eighty-six factory girls. Their average stay in Lowell has been about four and a half years. One hundred and sixteen of them have been reported as sick over a week and had the care of a physician. Forty-six of them have been guilty of bad conduct, for which they have been dismissed from the boarding houses. It is known that forty-nine have died, either in their boarding houses or probably soon after leaving them. It is known here, that one thousand one hundred and thirty-six of them have been married. We must leave these results to make such an impression on the reader as he shall deem to be reasonable and probably true.

MILL STATISTICS.

The overseers of the mills constitute the most permanent part of the population of the city. Some of them have retained their office for twenty years, that is, ever since factories were first established in this place ; a large number of them have filled their present stations for ten and twelve years. Both from their general intelligence, and from their peculiar opportunities of investigation, the experience and observation of these men must possess great value ; accordingly, measures have been taken to obtain the results of their knowledge. A series of questions has been sent to each superintendent of the Corporations, accompanied by the following request : " Will you select some faithful and long employed overseer on your Corporation, who may go through some one of your mills, and,

after personal inquiries of every girl, make me a return to the enclosed questions?"

The questions were as follows :

Name of the Corporation ?

Name of the overseer ?

How long has he been employed ?

Name of the mill selected ?

Number of girls in that mill ?

How many natives of Massachusetts ?

How many natives of Maine ?

How many natives of New Hampshire ?

How many natives of Vermont ?

How many natives of Canada ?

How many natives of Ireland ?

How many have worked less than a year ?

How many have worked between one and two years ?

How many have worked between two and three ?

How many have worked between three and four ?

How many have worked between four and five?

How many have worked between five and six?

How many have worked between six and seven?

How many have worked between seven and eight?

How many have worked between eight and nine?

How many have worked between nine and ten?

How many are connected with a Sunday school, either as pupil or teacher?

How many are church members?

How many have kept school?

How many say that they enjoy better health than before working in the mill?

How many as good health?

How many not so good?

To the overseer above named :

How many girls are there usually in your employ ?

Since you have been employed on your Corporation, have all persons in your room, known to be guilty of licentious conduct, either been dismissed, or at once left the Corporation ?

How many have been discharged from your room for this cause ?

This proposition met with the ready co-operation of the superintendents; and eight replies, presenting the statistics of as many different mills, have been received. The results are here copied, and will be given in a form similar to that adopted in the preceding chapter.

CASE 1. — *Appleton Corporation.* Mill, No. 2. John Tripp, overseer. Has been employed fourteen years ; one hundred and ninety-one girls in that mill ; thirty-six natives of Massachusetts ; fifty-nine of Maine ; fifty-

seven of New Hampshire; eighteen of Vermont; two of New York; four of Canada; fifteen of Ireland; eighty-six have worked less than one year; sixteen between one and two years; eighteen between two and three years; thirteen between three and four years; fourteen between four and five years; thirteen between five and six years; five between six and seven years; four between seven and eight years; eight between eight and nine years; five between nine and ten years; five between ten and eleven years; one between thirteen and fourteen years; three between fourteen and fifteen years; seventy-four are connected with a Sunday school; fifty-one are church members; six have kept school; ten say they have enjoyed better health since they worked in a mill; ninety-four as good health; eighty-one not so good. From thirty to forty girls have usually been employed in Mr. Tripp's room. All persons known to be

guilty of licentious conduct have been dismissed or have left the Corporation, and two have been dismissed from his room for that cause.

CASE 2. — *Boott Corporation.* Daniel Balch, overseer. Has been employed three and a half years in that room, but fifteen years in all. Inquiries made in No. 1 mill. One hundred and eighty-six girls employed in that mill. Twenty-nine natives of Massachusetts; thirty-seven of Maine; fifty-four of New-Hampshire; twenty-five of Vermont; nine of Canada; twenty-two of Ireland; ten of other states. Forty-two have worked less than one year; fifteen between one and two; twenty between two and three; twenty-three between three and four; sixteen between four and five; twelve between five and six; eleven between six and seven; ten between seven and eight; four between eight and nine; four-

teen between nine and ten ; nineteen between ten and twenty. Sixty-four are connected with a Sunday school ; sixty-seven are church members ; seventeen have kept school. Twenty-four say that they enjoy better health than before ; one hundred and eighteen as good health ; thirty-two not so good. Sixty-six girls are usually employed in Mr. Balch's room. All persons known to be guilty of licentious conduct have been dismissed, or have at once left the Corporation ; and, in looking back five years, Mr. Balch finds two instances of such persons dismissed from his room.

CASE 3.—*Hamilton Corporation*. Inquiries made in No. 1 Mill. Overseer, Elbridge G. Richardson. Has been employed fifteen years. One hundred and ninety-five girls in that mill. Thirty-two natives of Massachusetts ; fifty-seven of Maine ; seventy-one of New-

Hampshire ; seventeen of Vermont ; three of Canada ; eleven of Ireland. Twenty-three have worked less than one year ; twenty-nine between one and two years ; twenty between two and three ; twenty-one between three and four ; twenty-seven between four and five ; twenty-four between five and six ; five between six and seven ; eleven between seven and eight ; eleven between eight and nine ; twenty between nine and ten. Seventy-seven are connected with Sunday schools ; sixty-nine are church members ; thirteen have kept school. Nineteen say that they enjoy better health than before working in the mill ; eighty-two as good health ; ninety-five not so good. Twenty-eight girls are usually employed in Mr. Richardson's room. All persons known to have been guilty of licentious conduct have at once been dismissed, and none have been turned away from his room for that cause.

CASE 4. — *Suffolk Corporation.* Inquiries made by Oliver W. Flint. He has been employed thirteen years as overseer of a weaving-room. One hundred and fifty-six girls were interrogated. Sixteen natives of Massachusetts; thirty-five of Maine; fifty-three of New-Hampshire; twenty-nine of Vermont; six of Canada; fourteen of Ireland; one of New-York; two of England. Fifty-two have worked less than one year; twenty-nine between one and two years; sixteen between two and three; thirteen between three and four; ten between four and five; thirteen between five and six; seven between six and seven; four between seven and eight; two between eight and nine; ten between nine and ten. Seventy-two are connected with Sunday schools; fifty-one are church members; thirteen have kept school; and one of these has kept school for twelve years. Seventeen say that they have enjoyed better health than be-

fore working in the mill; ninety-two as good health; forty-seven not so good. There are usually employed in Mr. Flint's room eighty girls. All persons known to have been guilty of licentious conduct have at once been dismissed, and three have been turned away from his room for that cause.

CASE 5. — *Massachusetts Corporation.* Inquiries made in Mill No. 2, by Hannibal Powers, overseer of card-room, who has been employed one year and a half; by George H. Jones, overseer of spinning-room, who has been employed five years; by C. Goodspeed, overseer of the dressing-room; by J. W. Gale, overseer of the lower weaving-room, who has been employed three and a half years; and by D. D. Crombie, overseer of the upper weaving-room, who has been employed four years. One hundred and ninety-nine girls were interrogated. Eighteen were natives of

Massachusetts; thirty-nine of Maine; seventy-one of New-Hampshire; thirty-eight of Vermont; five of Canada; twenty of Ireland. Fifty-one have worked less than one year; thirty-six between one and two years; seventeen between two and three; nineteen between three and four; sixteen between four and five; seventeen between five and six; sixteen between six and seven; twelve between seven and eight; two between eight and nine; seven between nine and ten; one has worked thirteen years. Ninety-three are connected with a Sunday school; forty-nine are church members; nineteen have kept school. Nineteen say that they enjoy better health than before working in the mill; ninety-eight as good health; seventy-eight not so good. There are usually employed by the above overseers one hundred and seventy eight girls. All persons known to have been guilty of licentious conduct have been dismissed, and six are

reported as having been turned away for this cause. One of the overseers appends to his return the following note:—“About ten persons have been dismissed from my room, whose general reputation was bad, but of whom I could not satisfy myself that they were actually licentious, but they were indiscreet, and disregarded the advice of their overseer.”

CASE 6. — *Tremont Corporation.* Inquiries made by I. Deming, who has been overseer on the Tremont for six years, and in different mills for thirteen years. He interrogated one hundred and seventy-seven girls. Eighteen were natives of Massachusetts; thirty-seven of Maine; fifty-eight of New Hampshire; twenty-seven of Vermont; ten of Canada; twenty-four of Ireland; two of Rhode Island; one of New York. Thirty-eight have been employed less than one year; twenty-nine between one and two years; fif-

teen between two and three; twenty-four between three and four; twelve between four and five; nineteen between five and six; seven between six and seven; eight between seven and eight; eight between eight and nine; eight between nine and ten; three eleven years; two twelve years; two thirteen years; one fourteen years; one eighteen years. Eighty-three are connected with a Sunday school; eighty-six are church members; thirteen have kept school. Seventeen say that they enjoy better health than before working in the mill; eighty-seven as good health; thirty-three not so good. It has been the rule that all persons known to be guilty of licentious conduct shall be dismissed from the Corporation. Have had no positive evidence of any such conduct. Four persons have been sent away for being out late at night.

CASE 7. — The replies to the above queries in relation to one mill on the Lawrence Cor-

poration, have been brought together in the following letter from the Agent of that Corporation, which is here given entire:—

LOWELL, May 13, 1845.

REV. HENRY A. MILES.

DEAR SIR:— I rejoice to learn that you are preparing a "little book," to show "Lowell as it was, and as it is," and with great pleasure take upon myself the labor of collecting the facts you want in relation to the mills under my charge.

It is proper here to remark, that the Lawrence Manufacturing Company have four mills now in operation, and contemplate, in a few weeks, to start a new one, equal in size to two of the old. In each one of these four mills about one hundred and eighty female operatives are now employed.

I proceed to answer your inquiries:

Question 1. How many of your female operatives board off from the Corporation?

Answer. One hundred and thirteen, nearly all of whom board with their parents.

Q. 2. How many boarding-houses have you for females?

A. Twenty-nine.

Q. 3. How many overseers?

A. Twenty-eight first overseers, and twenty second overseers.

Q. 4. What is the average pay of an overseer?

A. First overseers receive two dollars, and second overseers one dollar and twenty-five cents per day.

Q. 5. What is the average pay of male operatives?

A. Our machinists receive, as an average, one dollar and thirty-five cents per day; watchmen, yard hands, and cloth-room hands, about ninety-two cents; and the young men in the mills about eighty cents as an average.

Q. 6. What the average pay of female operatives?

A. The females employed in our No. 1 Mill received, for the month ending on the second Saturday of May instant, an average of fifty-three and one-tenth cents per day, which is equal to one dollar ninety-three and six-tenth cents per week, after paying board; and I presume this was very nearly the average in all our mills.

Q. 7. How many operatives have you under fifteen years of age?

A. Ten in all the mills.

Q. 8. How many applications for work do you think that you reject per year?

A. It is impossible for me to answer, as no register of applications is kept. From October till May very many young men apply for employment. Some almost every day. During the residue of the year, calls are less frequent, though numerous. In the cool sea-

son, female help is also most abundant. For several years past the supply has exceeded the demand from October till May; the demand has exceeded the supply during the months of July, August, and September, and for the rest of the year they have been about equal.

During the past week, the overseers of our No. 1 Mill, to wit: Mr. Daniel Knapp, who has been twelve years overseer; Mr. William Roby, who has been sixteen years overseer; Mr. James French, who has been two years overseer, but who has worked in a mill twelve years; Mr. Isaac Cooper, who has been overseer ten years; and Mr. Franklin W. Burnham, who has been overseer five years, but has worked in a cotton mill twelve years; collected by a personal inquiry of the girls, in their respective rooms, the facts appearing in the following tables, to wit:

Whole number of girls then employed in said mill, one hundred and eighty-three.

Of these 21 are natives of Massachusetts,
 45 " " " Maine,
 55 " " " New Hampshire,
 52 " " " Vermont,
 3 " " " Canada,
 6 " " " Ireland,
 1 is a " " Scotland.

 183

Of the same persons 44 have worked less than 1 year.

26 from 1 to 2 years,

26 " 2 " 3 "

18 " 3 " 4 "

25 " 4 " 5 "

6 " 5 " 6 "

13 " 6 " 7 "

4 " 7 " 8 "

8 " 8 " 9 "

8 " 9 " 10 "

5 more than 10 "

 183

Of the same persons, are connected with S. Schools, 98

Church members, 74

Have kept school, 16

26 of them report their health as better than before
 they worked in the mills,

113 report their health as equally good,

42 " " " " not so good,

2 were absent at the time, and not interrogated.

 183

The number of females usually employed in said mill is one hundred and ninety-two.

To the question, "Since you have been employed by said Corporation, have all persons known to be guilty of licentious conduct, either been discharged, or at once left the Corporation?" every one of said overseers returns "*an affirmative answer.*"

And six are reported as the whole number known to said overseers, as ever having been discharged from their mill for this cause.

As to those discharged from other mills, they say they cannot answer, not knowing the facts. I think it not improbable that an equal number may have, for like reasons, been discharged from each of the other mills in the course of the ten past years, though I cannot call to remembrance half that number.

The original reports of the overseers I pre-

serve, and hold subject to the inspection of any one who may have an interest in seeing them. I am, very respectfully,

Yours, &c.

JOHN AIKEN,
Agent Lawrence Manufacturing Co.

CASE 8. — The following letter covers the replies from one mill, on the Merrimack Corporation, and is here given entire :

LOWELL, JUNE 13, 1845.

REV. H. A. MILES.

DEAR SIR: — Your inquiries respecting the operatives on the Merrimack Corporation should have received an earlier answer, but for other pressing engagements. I now proceed to reply to your questions in their order.

1. We employ in our five mills, when full, about twelve hundred and fifty females ; but, as we are generally short of help in the summer, we do not average perhaps over twelve

hundred. Of these, as near as I can ascertain, seventy-five to eighty board off the Corporation, mostly with their parents. This number includes the Irish, who almost invariably board in their own families.

2. We have a hundred and fifty-five tenements belonging to the company, which, at present, are appropriated as follows, viz: forty-seven boarding-houses for females exclusively; these include all our large tenements: eight boarding-houses for men exclusively; and one hundred are occupied, as private, by our overseers, mechanics, and others, employed by the company.

3. We have twenty-five first, and as many second, overseers in the mills, beside the overseers of our machine-shop, of the yard, and of the cloth-room — twenty-eight in all, of each class.

4. The usual pay of an overseer is two dollars per day; but overseers occasionally

receive a somewhat higher sum, either from their long experience, or from unusual labor and responsibility being devolved upon them. Occasionally, though not uniformly, additional pay is given in the form of premiums, or presents, to the more meritorious, according to their presumed degrees of merit. These premiums have varied in different years from two hundred to five hundred dollars in each mill; and sometimes have been omitted altogether.

5. The average pay of our male operatives, at the present time, would not probably vary much from eighty-five cents per day, clear of board.

6. The average pay of females, on regular work, would probably fall a little below two dollars per week, clear of board; but if we include their earnings on extra work, it would considerably exceed that sum.

7. It would be difficult to answer this question with even an approximation to accuracy.

With regard to men, probably not one in forty applicants is engaged. I speak of common laborers, not of mechanics. In regard to females, the case is different, and varies with the season of the year. From November 1st to May 1st, perhaps twenty-five to thirty-three and a third per cent. of those applying are rejected. From May 1st to November 1st, very few are rejected, if of suitable age and good appearance. During these months experienced hands are always in demand.

8. See results obtained by our overseers on next page.

9. Our rule is, to employ no child under fifteen years of age. I require all such applications to be referred to me, and I reject all, except the circumstances seem to demand a departure from the rule: for instance, where the mother works in the mill, or the sisters, the parents being dead. I may have, on an average, three or four such cases in all.

I submitted your other inquiries to the five overseers in one of my mills, and I now condense the answers obtained from them, into one view. The originals, over their own signatures, are at your service.

The mill selected is our No. 3 mill. The names of the overseers are as follows, viz.

Jesse Phelps, who has been Overseer over 19 years.

John W. Holland,	"	"	17	"
George Wellman,	"	"	11	"
James Townsend,	"	"	11	"
James C. Crombie,	"	"	1	"

Number of girls employed usually in the mill, two hundred and forty.

Natives of New Hampshire,	90
" Vermont,	61
" Maine,	58
" Massachusetts,	19
" Canada,	8
" Ireland,	4
	<u>240</u>

Have worked under one year	40
Over one but under two years.....	23
" two " three	37
" three " four	32
" four " five	22
" five " six	22
" six " seven	20
" seven " eight	6
" eight " nine	8
" nine " ten	4
From ten to twenty-one years	26
	<u>240</u>

In answer to the inquiry respecting their health, twenty-two answer that their health has been better, since working in the mills, than before; one hundred and forty-three, that it has been as good, or about the same; and seventy-five, that their health has not been as good as formerly; though many attribute their loss of health to other causes than working in the mills.

One hundred and twenty-eight of the two hundred and forty, are connected with Sabbath schools, some few as teachers.

One hundred and three are members of some Christian church.

Thirty-one have been heretofore engaged in teaching school.

In answer to your inquiries respecting the prevalence of licentiousness, I give you their answers separately.

Mr. Phelps, who commenced at Waltham, and has been with us nearly twenty years, and is, I believe, the oldest overseer in Lowell, says:

“It has been the uniform rule of the company to discharge every person, male or female, known to be guilty of licentious conduct. The facts are usually discovered and made known by the other girls working in the same room, or boarding in the same house; and, if the guilty parties were not at once discharged, their companions would in most, if not all cases, themselves leave. I should judge that the whole number discharged from

the Merrimack Company, during my connection with it as an overseer, which has been betwixt nineteen and twenty years, has not exceeded two or three each year, and that such cases have been more rare of late years than formerly. I do not recollect ever having discharged but three for licentious conduct during the whole time I have been in the manufacturing business.

Mr. Holland, who has been an overseer for our company seventeen years, says :

“ Since I have been employed by the Merrimack Company, all persons known to be guilty of licentious conduct, have either been dismissed or have at once left the Corporation. But three persons have been discharged from my room, out of eighty-four usually employed, during the whole time, and I have no knowledge of but six cases upon the Corporation.”

Mr. Wellman, who has been overseer of a

card room eleven years, and has usually had about twenty girls under his care, says :

“ No licentious or immoral person would be allowed to work in the room ; but I do not recollect a single instance in which a girl has been dismissed from my room from this cause. I have sometime suspected girls, and in such cases have contrived to get rid of them as quietly as possible. The whole number discharged from the Corporation for this cause I cannot state very precisely — perhaps twelve or fifteen during the last eleven years. I should think such cases less frequent now than when I first came to Lowell, eleven years ago.”

Mr. Townsend, who has also been with us about eleven years, says :

“ All persons known to be guilty of licentious conduct, so far as my knowledge extends, have been immediately dismissed from the Company's employ, or have left the Corpora-

tion. None have been discharged from my room from this cause."

Mr. Crombie says :

"I have never known any person retained in the employ of the company, when known to be guilty of licentious conduct. I have been employed as overseer only one year, but was assistant overseer nearly six years. Since I have been overseer no one in my room has been discharged, or suspected of licentious conduct. While I was second overseer, there were three girls discharged from the room where I worked for this cause; no one of them, however, had worked in the room over a week before her character became known or suspected, and she was at once discharged. Such cases are very uncommon, however; and since I have worked in the yard, I do not think I have heard of one case a year, upon an average."

These are all the answers I have obtained

in relation to your inquiries ; and I believe they embrace substantially the information you wished. I shall be most happy to furnish you any other facts in my possession, which you may think would be useful to you.

Very respectfully,

Your obedient servant,

J. CLARK.

Sup. Merrimack Manuf. Com.

In the two foregoing letters the reader will perceive that there are replies to other questions beside those given at the beginning of this chapter. They relate, principally, to the average pay of operatives, to the number that do not board on the Corporation, and to the number under fifteen years of age. On all the Corporations the wages are nearly uniform, so that it is unnecessary to present more than one or two statements bearing upon that point. The other two topics are of considera-

ble importance, and answers relating to these, from other superintendents, will here be subjoined. Referring above to what Mr. Aiken, and Mr. Clark write in reply to question No. 1, we will add that the superintendent of the Appleton Corporation reports sixty-two operatives as not boarding in that company's houses; the superintendent of the Boott reports one hundred and seventy-seven; from the Suffolk the answer is one hundred and three; from the Tremont, thirty-eight. These officers have added the remark, that operatives who do not board on the Corporation, in almost every case, live with their parents, or brothers, or sisters, or other near connexion. Of operatives under fifteen years of age, there are reported ten from the Lawrence, five from the Merrimack, one from the Appleton, none from the Boott, eight from the Suffolk, and three from the Tremont. These are all cotton mills. In the Print Works and Carpet Mill

a somewhat larger proportion of children are employed. In respect to all operatives under fifteen years of age, the law of Massachusetts, requiring that such shall attend school for the space of three months every year, is rigidly enforced.

One other remark will conclude this chapter. We have now given returns from eight mills in the city. There is no reason for believing that returns from all the mills would lead to essentially different results. Assuming that the proportions established by these eight may be safely applied to all the rest, we arrive at the following conclusions, which the reader will be able to verify for himself.

Of the six thousand three hundred and twenty female operatives in Lowell, Massachusetts furnishes one-eighth; Maine, one-fourth; New Hampshire, one-third; Vermont, one-fifth; Ireland, one-fourteenth; all other places, principally Canada, one-seventeenth.

Of all these operatives, more than three-sevenths are connected with some Sunday school, either as teachers or pupils, this being two thousand seven hundred and fourteen in all. About three-eighths of them are church members, this being two thousand two hundred and seventy-six in all. Five hundred and twenty-seven have been teachers in common schools. The average time during which these female operatives work in the mills is between four and five years. A large majority of them report their health as being either better than, or as good as, it was before entering the mill.

MORAL AND INTELLECTUAL ADVANTAGES.

A brief reference to some of the privileges which the operatives and citizens of Lowell enjoy, will complete the circle of topics con-

templated in this work. We will first allude to those which are within the reach of the former. Opportunities of reading are afforded them, during the evenings, and Sundays, and occasional absence from the mills. Parish, city, and circulating libraries are resorted to for books; and great numbers of the factory girls are subscribers to newspapers, magazines, and reviews. Among a class containing, as we have seen, five hundred school teachers, it will not be thought strange that many should employ their leisure hours in attempts to advance their education. Quite a large number attend evening schools in the winter; and it has been ascertained that on one Corporation alone, there were two hundred and ninety girls who employed a part of the evenings of one winter in this manner. Instances are not uncommon of female operatives forming themselves into classes, to take lessons in the study of some foreign language. Others will club

together to hire a piano, and employ the services of a teacher of music; and the notes of that instrument are often heard proceeding from the boarding-houses. Beside these, there are formed what are called "Improvement Circles," which meet once a fortnight, or once a month, to hear and criticise anonymous compositions furnished by the members. It was in a circle of this description that the Lowell Offering had its origin. Of courses of public lectures, and attendance at churches, we shall speak in another place. All these things exert a beneficent influence in educating young women who resort to this city for employment; and it is known that many come here, less through any necessity of their circumstances, than from a desire to avail themselves of the advantages which are here enjoyed.

CHURCHES.

There are in Lowell twenty-three regularly constituted religious societies, viz: one Episcopal, four Congregational Orthodox, one Congregational Unitarian, three Baptist, three Universalist, two Episcopal Methodists, two Wesleyan Methodists, two Roman Catholics, two Freewill Baptists, two Christians, one Free Chapel, connected with the Ministry at large. These societies have erected nineteen churches at a cost of three hundred and eight thousand dollars; and two new churches have been commenced this season. They are served at the present time by twenty-two ministers, whose support, with other expenses of public worship, amounts to twenty-five thousand dollars per year. Connected with these societies, there are six thousand one hundred and twenty-three Sunday school pupils and teachers, con-

stituting more than a fifth part of the entire population of the city. Though all these societies are composed altogether of working people, and many of them almost exclusively of factory operatives, yet their charities are many in number, and are considerable in their aggregate amount. Contributions of four hundred dollars have repeatedly been taken up, in a single church, for missionary purposes. One of these societies raised, the last year, one thousand dollars for the purchase of a pastor's library. Another has established, within a few years, a parish library of two thousand three hundred volumes, of permanently valuable books, and has recently undertaken the support of a Ministry at large, pledging itself for this purpose to the amount of eight hundred dollars a year. It has been ascertained that the charities of the religious societies of this city, during the past year, beside what was raised for their ordinary ex-

penses, amounted to ten thousand three hundred and twenty-six dollars.

A better feature still of the Lowell churches is that higher kind of charity, which the Apostle has placed above the bestowing even of all one's goods to feed the poor. Few are the places which, on the whole, are more exempt from bigotry, intolerance, and the little arts of persecution and censoriousness, so often suggested by sectarian zeal. The clergymen of the city often meet together, to consult and act in concert, to promote some moral end ; and such meetings have encouraged generous feelings between the professors of different forms of faith. The factory girl, who comes to Lowell, finds a church professing the creed in which she has been educated ; and many become interested in their Sunday school, and attached to their pastor, and have occasion to remember this city with gratitude, as the birthplace of that higher life to which they have here been awakened.

SCHOOLS.

The public schools of Lowell are divided into three grades, consisting of one High School, eight Grammar Schools, and thirty Primary Schools. In the building of school-houses, the city has already expended rising of one hundred thousand dollars. Houses for the accommodation of the Primary and Grammar Schools are placed in various parts of the city, the edifices for the latter being spacious, two story, brick buildings. The High School is centrally situated on Anne, and Kirk streets, and is one of the best buildings of the kind in the country. It was erected in 1840, at a cost of about nineteen thousand dollars. Six instructors are employed in this school; the average number of pupils is two hundred. There are about fifteen hundred scholars in the Grammar Schools, and two thousand in the Primary.

The present appropriation for the support of these schools is twenty-four thousand dollars. This city stands among the first in the cities and towns of this commonwealth in the amount appropriated for public instruction, and the well established, and universally acknowledged excellence of our schools, is an advantage which often brings families to Lowell.

CITY LIBRARY.

Last year a public library was established in Lowell, at an expenditure of three thousand five hundred dollars, the larger part of which was an appropriation from the City Council for this purpose. A large room has been fitted up in the City Hall, a librarian has been appointed, and a catalogue of about five thousand volumes has been printed. The library is under the care of a board of direc-

tors, chosen by the City Council, and is open to all residents in Lowell, by the payment merely of fifty cents a year.

LOWELL OFFERING.

The origin of this periodical has already been named. The variety and merit of articles, written by females employed in the mills, and read in an "Improvement Circle," formed in the early part of 1840, suggested the publication above named. The first number appeared in October of that year, and succeeding numbers followed at irregular intervals. In April, 1841, a new series was commenced; and, not long after, two female factory operatives became the publishers and editors of the work, which now appeared every month. The offering was received with much favor, and no little surprise. The leading newspapers and

reviews gave it complimentary notices ; and many copies of it have been sent to England, where, during the past year, a volume has been published of selections from this periodical, under the significant title of "Mind among the Spindles." The extensive reputation which the Offering has gained, has been almost inexplicable to the people of Lowell, who so well know that there is mind among the spindles. The fact has only revealed the great extent of the misapprehensions abroad, of the true character of the Lowell female operatives. These misapprehensions the Offering has served to correct, and, in this respect, its short life, as the publication is soon to be discontinued, has not been in vain.

SAVINGS BANK.

This institution was incorporated in 1829, since which it has received two millions one

hundred and three thousand five hundred dollars, and has paid out one million four hundred twenty-three thousand five hundred dollars. Of the two thousand depositors in this bank, about one half are factory girls ; the amount of whose funds, now on interest, is estimated at one hundred thousand dollars. It is not an unusual thing for one of these girls to have five hundred dollars on deposit. Two per cent. in interest is paid for every six months, which, if not withdrawn in three months, is added to the principal, thus compounding interest twice a year. At the end of every five years all extra income is divided, and the interest on long deposits has generally amounted to seven per cent. Probably no institution of this kind in the country has been more faithfully and successfully managed.

LOWELL INSTITUTE.

This is an association of gentlemen of this city, which has for its object the management of a course of lectures, delivered every winter. About twelve hundred tickets are sold, at the low price of seventy-five cents each. With the proceeds a band of music is hired to play every lecture evening, and the most distinguished lecturers are engaged, at the rate of fifteen dollars per lecture. The City Hall is commonly crowded full. Many of the female operatives attend, and the opportunity is justly prized by them of deriving more entertainment and instruction than most of them could receive at home. It is not unusual for other courses of lectures to be given in Lowell during the evenings of winter.

MINISTRY AT LARGE.

In the summer of 1844, the South Congregational Society established a ministry at large, on the plan of that founded by Dr. Tuckerman in Boston. Its object is to minister to the temporal and spiritual wants of all those not reached by any of the existing religious societies. Regular services are held every Sunday in the Hamilton Chapel, on Middlesex Street, which are free to all "without money and without price," and here, likewise, a Sunday school has been gathered, of about one hundred children. A faithful and judicious pastor has the charge of this charity, who devotes the whole of his time to searching out, relieving, and comforting those who have been overlooked by others. The best influences are hoped from this ministry upon the neglected young and the suffering poor.

LOWELL HOSPITAL.

In 1839, the manufacturing Corporations purchased the spacious and elegant mansion house erected by Kirk Boott, Esq., which, with the necessary alterations, cost twenty thousand dollars. This building was set apart as a hospital for sick operatives. Its commodious parlors and chambers were converted into wards, and one of the most eminent practitioners in Lowell was appointed its physician, and resides in the building. All persons in the employ of the Corporations, who are taken sick, can here have the best nursing and medical attendance. The charges are four dollars a week for men, and three dollars for women. If the patients are able, they are to pay to the superintendent; if not able, the Corporations from which they go are responsible, and the patients are then responsible to the Cor-

porations. The number of patients averages about a hundred and fifty a year. Of the entire expenses of the establishment, about three fourths are shared by the Corporations.

LOWELL DISPENSARY.

This charitable institution was incorporated in 1836. Its object is the relief of the poor, by affording medicines and medical attendance gratuitously. It appoints two physicians, each of whom has a section of the city under his care ; and all subscribers to this charity command their services in behalf of the sick poor. To this class the dispensary has afforded much timely and effectual aid.

HOWARD BENEVOLENT SOCIETY.

It was organized in 1840. Its object is to afford encouragement and aid to the moral and industrious poor. By its committee of two in each ward, all deserving objects of charity are reported to a board of trustees, who make gifts or loans of articles necessary for relief and comfort. This also has been a highly useful public charity.

LOWELL CEMETERY.

This is on the east bank of the Concord River, a little more than one mile above its junction with the Merrimack. The beautiful example of Mount Auburn has been imitated in many of our cities and large towns, but perhaps in none with more success than in

this cemetery. Few spots can combine greater advantages, in its variety of surface, its rich growth of wood, in the graceful curve of the river, and in the perfect quiet which here reigns, so harmonious with the solemn purposes of the place. The visitor to Lowell should not omit a ride to this "garden of graves." The cemetery contains about forty-four acres, and was solemnly consecrated, June 20, 1841.

CONCLUSION.

We have now traced the successive steps of the growth of this city. We have described the extent of its business and the character of its operatives, and have alluded to the various institutions which its citizens have established for purposes of education, charity, and religion. When it is considered that Lowell is not yet twenty-five years old, its present condition cannot be contemplated without astonishment. No where but in New England, with the spirit of the Massachusetts people, and with Boston enterprise, could this great success have been wrought out. Other manufacturing villages have met with reverses and failures, but in Lowell these things have been unknown. No Corporation has ever become embarrassed, or failed to meet its obligations,

or been obliged to suspend its works. The population which this great success has collected, possesses rather more than an average share of New England intelligence, as it is only the more enterprising who remove from their paternal homes, and with this a full average share of New England good morals. Nor does the visitor to this industrious and thriving city, see all of Lowell even in Lowell. When he thinks of the immense quantities of raw materials which are here demanded, of the cotton, wool, iron, coal, dye-stuffs, oils, here used up, and of the vast number of persons employed as producers, conveyers, agents, and clerks, he can hardly form a just conception of the amount of business which Lowell sets in motion, nor estimate the hundreds of thousands to whom Lowell gives employment. The effect of the growth of this city upon the surrounding country is another interesting subject in political economy. It furnishes one of

the best markets in the world to an agricultural district within a circuit of thirty miles in diameter. The improvements in this district, within the last fifteen years, have been manifestly great. Farms have been cleared of old mortgages, buildings and fences have been repaired, and real estate has risen in value to an extent often estimated at no less than a million dollars.

In regard to the future career of Lowell it would be unwise to predict. It is true that the water-power, as at present used, is exhausted. Ninety-one mill powers have been sold, of seventy horse power each. This is all the power of the river at the very lowest flow of water, equal to six thousand three hundred and seventy horse power. The estimate of a mill-power was made at a time when it was proposed to use much less machinery in a mill than is now run. Nearly two of the above mill-powers are now required for a

mill; so that the actual capabilities of Lowell, as the water is now used, amount to the power of forty-five mills. This, as has been said, is all appropriated. But, by the introduction of steam, to be used in the dry seasons of the year, and by improved machinery, which will work with less friction and require less power, it is impossible to foresee to what extent Lowell may yet grow. It is estimated that full one half of all the power of a mill is required to perform the single process of spinning. If, as is supposed, the use of mule-spinning will save one half of this power, the entire operations of Lowell may be at once extended twenty-five per cent. This is only one illustration of the effect of those improvements which time perpetually reveals.

It is certain, then, that the growth of this place will continue as long as the general prosperity of the country endures, and new

improvements in science and art are brought to light. The great experiment of Lowell is an experiment of another kind: it is an experiment whether we can preserve here a pure and virtuous population; whether there are no causes secretly at work, and to be developed in the course of thirty or forty years, to lower our standard, and to sink our character; whether we can run a career of half a century free from the corrupting and debasing influences which have almost universally marked manufacturing cities abroad. And a great experiment it is. We are deciding the question, not for ourselves alone, but for numerous other places around us—indeed, for New England itself. The branch of industry here established is every year rooting itself more firmly throughout this section of our land, the whole of which will, in a degree, repeat the career which we ourselves run. There have been laid for us here the founda-

tions of a great success — a method of business well devised, and carefully adjusted part to part, a system of public instruction planned on a broad and generous scale, churches, Sunday schools, libraries, charities, numberless institutions to enlighten, guide, and bless this growing city. Have we wisdom, and firmness, and virtue enough, to meet our dangers successfully? That is the true problem to be solved. May we look to that good Being who gives wisdom, and strengthens virtue, and to Him shall be ascribed the success.

APPENDIX.

There are several men, now no longer among the living, to whose services Lowell is greatly indebted for her prosperity, and whom we may appropriately notice in this appendix. The Nestor of Massachusetts manufacturers, whose name we have already mentioned, and shall have occasion to repeat, is still alive; and we trust that the fact will long preclude that notice of his valuable services which they would otherwise receive. We begin with

FRANCIS CABOT LOWELL,

Of whose name and memory our city is a monument. His connection with the manufacturing business will not be understood, without some brief sketch of the progress of that business in New-England.

The "Beverly Cotton Factory" was the first company in this country to engage in the manufacture of cotton. It was organized in 1787, with a capital of ninety thousand pounds sterling. The Messrs. Cabots, Thorndike, and Fisher, of Beverly, and Henry Higginson, of Boston, were its chief proprietors. John Cabot

and Joshua Fisher were appointed agents for the management of its concerns. It continued in operation upwards of fifteen years, making corduroys, bed-tickings, cotton velvets — durable and approved fabrics; yet the business was not profitable, the loss having been as great as ninety cents on the dollar.

Mr. Samuel Slater came from England in November, of 1789. In December, 1790, he established a small factory at Pawtucket, near Providence, R. I. In 1793, another factory was built by Messrs. Brown, Almy, and Slater, in Pawtucket, in which they set in motion, July 12th, of that year, seventy-two spindles. For many years the progress of the business was extremely slow, and as late as January, 1807, there were but four thousand spindles in operation in Pawtucket and its neighborhood. These supplied yarns for hand-weaving, and the cloth that was made was almost entirely of family manufacture. At that time the country received nearly all its cotton cloth from Great Britain, and the East Indies. In 1807 and 1808, there were imported from Calcutta fifty-three millions of yards, principally of coarse cotton goods, and worth, as prices then were, over twelve millions of dollars. In 1810, there were made in all the factories in the United States, as appears by returns made by order of Mr. Gallatin, then Secretary of the Treasury, only eight hundred and fifty-six thousand six hundred and forty-five yards of cotton cloth, viz. —

In Rhode Island,.....	735,319
Massachusetts,.....	36,000
Vermont,.....	2,500
New-Jersey,.....	17,500
Pennsylvania,.....	65,326

Total,.....	856,645
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This is not so many yards as four of the establishments in Lowell can now turn out in one week. The whole number of yards made in the United States in that year, was sixteen million five hundred eighty-one thousand two hundred and ninety-nine. Of this, fifteen million seven hundred and twenty-four thousand six hundred and fifty-four yards were of family manufacture, so imperfect was the machinery then in use. The weaving of the yarn alone cost double the whole process of making the fabric, after the introduction of the power-loom, in 1815.

Francis Cabot Lowell, son of Hon. John Lowell, LL. D., and grandson of the Rev. John Lowell, of Newburyport, was born in that town, in 1774. He was graduated at Harvard College, in 1793.

In a Memoir of Mr. Lowell's son, John Lowell, Jr. the founder of that course of lectures in Boston, known as the Lowell Institute, Mr. Edward Everett thus writes:—"In 1810, Mr. Francis Cabot Lowell was induced to visit England with his family, on account of the state of his health. The vast importance of manufacturing industry, as a source of national

wealth, was no doubt impressed with new force upon his mind, in consequence of his observations in that country, and some branches of manufactures were examined by him with care; but it is not known that he paid particular attention to that of cotton. On his return home, and shortly after the commencement of the war of 1812, Mr. Lowell was so strongly convinced of the practicability of establishing that manufacture in the United States, that he proposed to a kinsman and friend (Mr. Patrick Tracy Jackson) to make the experiment on an ample scale. The original project only contemplated the weaving of cotton by machinery. The power-loom, although it had been for some time invented in England, was far less used in that country, in proportion to the quantity of cotton spun, than at the present day, and was wholly unknown in the United States. After deliberation, the enterprise was resolved upon. A model of a common loom was procured by Mr. Lowell and his friend — both equally ignorant of the practical details of the mode in which the power-loom was constructed — and their* joint attention was bestowed on the re-invention of that machine. The winter of 1812—13 was passed at Waltham, where a water-power had been purchased, in bringing the loom to perfection. On being completed, it was found to answer the purpose so entirely, as to warrant the immediate construction, on the same plan, of all the looms needed for the establishment." — *Page 31 of Memoir, prefixed to the first volume of Lowell Lectures by John Gorham Palfrey.*

These were the first power-looms that were brought into successful operation in this country. They were the invention, as is stated above, of Messrs. Lowell and Jackson, aided by one important mechanical movement, which the genius of Mr. Paul Moody supplied. Power-looms had been invented in this country prior to that of Messrs. Lowell and Jackson's, and no less than twenty-five models had been patented at Washington, at the time they set theirs up. But theirs was the first that wove cloth to any considerable amount. A machine upon which he had spent so much thought and time, was naturally an object of great interest to Mr. Lowell. A friend of his, once finding him almost wholly lost in thought, while intently surveying the model, asked him what he could find in that machine which so absorbed his attention; Mr. Lowell replied, "that he had been reflecting upon the immense results which that piece of mechanism was destined to work out, and he would make the prediction that, within fifty years, cotton cloth would be sold for fourpence a yard." At a time when ten cents was paid per yard, for weaving alone, and the cloth cost thirty-three cents per yard, this prediction was regarded as the effusion of an enthusiast. It is needless to add that the prophecy has been literally fulfilled.

In a speech, made in the Massachusetts House of Representatives, in January, 1828, Mr. Nathan Appleton, while referring to the successful efforts of Mr. Lowell, has the following brief but emphatic sentence: "Seldom had a mind of so much science been turned

to this subject, and never was a triumph more complete."

In consequence, however, of the ill success which had attended previous attempts, the public feeling was strong against any further manufacturing efforts. It is stated by Henry Lee, Esq. of Waltham, in one of a series of interesting articles contributed by him to the Boston Daily Advertiser, in 1830, that when Mr. Lowell first made the proposal to engage in the business, "many of his nearest connections used all their influence to dissuade him from the pursuit of what they deemed a visionary and dangerous scheme. These, too, were among those who knew, or thought that they knew, the full strength of his mind, the accuracy of his calculations, his industry, patience, and perseverance, and, withal, his power and influence over others whose aid was essential to his success; they still thought him *mad*, and did not recover from that error till they themselves had *lost their own senses*, of which they evinced symptoms at least, by shortly purchasing into the business of this visionary schemer at thirty, forty, fifty, and even sixty per cent. advance."

From the Memoir by Mr. Everett, we again quote :

"Mr. Francis Cabot Lowell repaired to Washington in the winter of 1816; and, in confidential intercourse with some of the leading members of Congress, he fixed their attention on the importance, the prospects, and the dangers of the cotton manufacture, and the policy of shielding it from foreign competition by legislative protection. Constitutional objections, at that

time, were unheard of. The Middle States, under the lead of Pennsylvania, were strong in the manufacturing interest. The West was about equally divided. The New England States, attached, from the settlement of the country, to commercial and navigating pursuits, were less disposed to embark in a new policy, which was thought adverse to some branches of foreign trade, and particularly to the trade with India, from which the supply of coarse cottons was principally derived. The planting States, and eminently South Carolina, then represented by several gentlemen of distinguished ability, held the balance between the rival interests. To the planting interest it was demonstrated by Mr. Lowell, that, by the establishment of the cotton manufacture in the United States, the southern planter would greatly increase his market. He would furnish the raw material for all those American fabrics which should take the place of manufactures imported from India, or partly made in England from India cotton. He would thus, out of his own produce, be enabled to pay for all the supplies which he required from the north. This simple and conclusive view of the subject prevailed, and determined a portion of the south to throw its weight into the scale in favor of a protective tariff. The minimum duty on cotton fabrics, the corner stone of the system, was proposed by Mr. Lowell, and is believed to have been an original conception on his part. It was recommended by Mr. Lowndes; it was advocated by Mr. Calhoun, and was incorporated into the law of 1816. To this provision of law, the

fruit of the intelligence and influence of Mr. Lowell, New England owes that branch of industry which has made her amends for the diminution of her foreign trade; which has kept her prosperous under the exhausting drain of her population to the West; which has brought a market for his agricultural produce to the farmer's door; and which, while it has conferred these blessings on this part of the country, has been productive of good, and nothing but good, to every other portion of it. For these public benefits—than which none, not directly connected with the establishment of our liberties, are of a higher order, or of a more comprehensive scope—the people of the United States are indebted to Mr. Francis Cabot Lowell; and in conferring his name upon the NOBLE CITY of the arts in our neighborhood, a monument not less appropriate than honorable has been reared to his memory. What memorial of a great public benefactor so becoming as the bestowal of his name on a prosperous community, which has started, as it were, from the soil at the touch of his wand? Pyramids and mausoleums may crumble to the earth, and brass and marble mingle with the dust they cover, but the pure and well deserved renown, which is thus incorporated with the busy life of an intelligent people, will be remembered, till the long lapse of ages and the vicissitudes of fortune shall reduce all of America to oblivion and decay." *Pages 37—39.*

Mr. Lowell died in 1817, at the age of forty-three.

PAUL MOODY.

When the history of the progress of mechanical invention in this country shall be written, the name of Paul Moody will be honored as one of the chief men in this line of distinction. He was born in Newbury, in 1777. He was engaged in the manufacturing business in Amesbury, in partnership with Mr. Ezra Worthen. In 1814 he removed to Waltham, and rendered the most valuable assistance in starting the first mill in that town. A few anecdotes, illustrative of his talents and success, will constitute the only notice of his life which can here be taken. He supplied an important movement in the power-loom invented by Messrs. Lowell and Jackson, to which that machine owed its successful operation. He invented what is called the "dead spindle," which was introduced at Waltham, and is still used throughout the mills at Lowell. The Rhode Island machinery employed the "live spindle," copied from the English. The product of the former is greater, though it requires more power. About the time of starting their mill at Waltham, Mr. Lowell and Mr. Moody went to Taunton, Mass., to procure a machine for winding the filling upon the bobbin. Just as the former gentleman was concluding a contract for these machines, Mr. Moody suggested, that if they would return to Waltham without them, he thought he could invent a machine to *spin* the yarn upon the bobbin in the same conical form in which the winder put it

on; and thus supersede the necessity of the intervention of that machine. Upon their return he invented what is called the "filling frame," a machine which he at once perfected, and which is still used both at Waltham and at Lowell. Near the same time Mr. Lowell told Mr. Moody that they must have a "governor," to regulate the speed of their wheels. This was an apparatus of which Mr. Moody had never heard, and the only information concerning it which his friend could supply was that, having seen one in England, he remembered there were two iron balls suspended on two rods, connected at one end like a pair of tongs. When the wheels were in too rapid motion these balls were driven apart, and produced a partial closing of the water gate; when, on the other hand, their motion was slow, the balls approached each other and effected a greater opening of the gate by which an increased motion was obtained. This conversation was held in Boston, at Mr. Lowell's house. The gentlemen separated with an understanding that a "governor" should be forthwith ordered from England. Mr. Moody, on his ride to Waltham, could not get those balls out of his mind. They were flying round in his brain the whole of that day and night. The next morning he went to the shop, and chalked out the plan of some wheels, which he ordered to be made. Not long after this Mr. Lowell was at Waltham, and Mr. Moody inquired if the "governor" had been ordered from England. On learning that it had not, Mr. Moody produced the "governor" which he had made. It was

set up in the mill, and that identical one was in successful use until 1832. The "governors" now used in this city are all copied from that. Mr. Moody, with the assistance of Mr. Lowell, was the inventor of the "double speeder." The machine was set in operation at Waltham and was patented. Some time after this the patent right was infringed upon by some mechanics who had worked upon the machine at Waltham, and a prosecution ensued. The case was tried before Judge Story, and was argued by Mr. Webster. The late Mr. Bowditch, then of Salem, was requested to examine the principles, both of the original and the imitated machines, in order to appear as a witness at the trial. Mr. Bowditch was afterwards heard to say that seldom had his mind been more severely taxed, for the "double speeder" required for its construction the greatest mathematical power of any piece of mechanism with which he had become acquainted. The idea of this machine originated with Mr. Moody, but the mathematical calculations necessary for its construction were made by Mr. Lowell.

Beside the "double speeder," the Waltham Company patented a spinning frame, dressing frame, and warper, all the invention of Mr. Moody. It is an evidence of the great value attached to Mr. Moody's services, that when in 1823 he went to Lowell, taking with him models and mechanics from Waltham, the company in the latter place was remunerated for the loss, by the payment to them of one hundred thousand dollars. Mr. Moody was at the head of the machine

shop in Lowell until the time of his death, July 7, 1831. No man could be more valuable in the place he filled, not only by his great talent in inventing, but by a rare tact in arranging and combining machinery, in convenient, economical, and effective forms. Modest and unpretending — a “born gentleman” in his manners, as one called him, and of the strictest integrity of character, he was greatly esteemed while living, and was much mourned when dead. Had he lived in England, he would have won for himself some of the highest honors which that country is prompt to bestow upon great inventive genius. It is hoped that the manufacturing companies in Lowell will yet do something to perpetuate the name of one to whom they are so greatly indebted.

KIRK BOOTT.

The early history of Lowell is a history of the services of this gentleman. It received the deep impress of his character, and is more indebted to his energy and great business talents, than to those of any other individual. He was here when the first mill was erected, superintending the interests of the Merrimack Manufacturing Company, and was appointed to the agency of the Locks and Canals, upon the reorganization of that Corporation in 1825. From that time to his death he was the master spirit of the place, laying out plans

for the extension of its works, devoting the powers of a strong and cultivated mind to its prosperity, and observing with the highest satisfaction every step it took towards the great city to which he lived to see it attain. Some brief notice of him here cannot be inappropriate to this book.

Mr. Boott was born in Boston in 1791. At an early age he was sent to England, and for some time was a member of the Rugby School, since made celebrated by the late Dr. Arnold. On his return he entered Harvard College, but did not remain there long enough to receive a degree. Choosing a military profession, his father obtained for him a commission in the English army, with which Mr. Boott was connected about five years. He served in the Peninsular war under the Duke of Wellington, and commanded a detachment at the siege of San Sebastian in July 1813. After this his regiment was ordered to New Orleans, to serve against the United States, in the war then existing between the two countries. Mr. Boott obtained leave to withdraw, and entered a military academy, where he obtained a thorough knowledge of the arts which were afterwards of such eminent service to him, engineering and surveying. Upon the death of his father, in 1817, Mr. Boott returned to Boston, and entered into business with his brothers. He did not long remain in this employment; and the summer of 1821 found him at leisure. Then occurred one of those incidents which, though they appear trifling and chance at the time, often give direction and shape to a man's whole life.

Passing a day at Nahant, in company with Mr. Patrick T. Jackson, the latter gentleman expressed great delight in having even that brief respite from his numerous and pressing cares. Mr. Boott expressed a wish that he had cares too, and offered to accept of any post of service which Mr. Jackson might assign him. The conversation soon resulted in an offer to Mr. Boott of the superintendence of the new works at East Chelmsford. In the autumn of that year Mr. Boott visited this place. In the succeeding spring he came here to reside, and from that time gave his whole zeal and strength to promote the prosperity of the new village and town. He watched its growth with a paternal interest, resolving here to live and die.

It is impossible to present any extended account of his services. As a man of prompt business habits, of great power to manage men, and to grasp and master extensive and complicated details, rarely has he been excelled. Naturally of a strong and impetuous will, he made every thing yield to the perseverance and energy of his character. It is related that once, in his absence, his workmen finding it difficult to make a current of water flow in a desired channel, it was proposed that Mr. Boott's hat and walking stick should be brought and laid on the bank, they feeling sure that then even the water would obey. At the same time, by his high sense of honor, his lofty integrity, his quick perception and decided practice of what was just and right, he had always a hold upon the respect and affections of those he employed. Towards the close

of his life, the mechanics of Lowell had a full length portrait of Mr. Boott taken by Harding, which now hangs in their Hall. In whatever situation Mr. Boott was placed, as representative of Lowell in the Legislature, as undertaking more of the Company's cares than any other two men could meet, or as its agent abroad to procure skilful artizans — for which purpose he once or twice visited England — he proved himself fully competent to his post. His constitution was much impaired by a long camp sickness, while in the army, and by a spinal complaint from which he suffered many years, and of which he finally died. On the morning of April 11, 1837, he dropped dead from his chaise.

WARREN COLBURN.

Nine years of Mr. Colburn's life were spent in Lowell, as superintendent of the Merrimack Manufacturing Company. A few pages of an appendix afford no place to do any thing like justice to a man of the rare genius, and great beauty of character, which Mr. Colburn possessed. He was born in Dedham, in 1793, and for several years was a practical mechanic in that town. Under the impulse of a strong thirst for knowledge, he commenced, rather late in life, and in struggle with untoward circumstances, preparation for Harvard University, which he entered at the age of twenty-four.

He graduated from that Institution in 1820. While there he developed that fondness for mathematical studies, which constituted a remarkable feature of his mind, and as an undergraduate, read through a considerable part of the great work of Laplace. For a few years he taught a school for boys in Boston, and while thus engaged, wrote and published the well-known works on Arithmetic, which have revolutionized our system of elementary instruction in that science. In the April of 1823, Mr. Colburn went to Waltham to take charge of the upper mills in that town; but in little more than a year he was invited to Lowell, to fill the office made vacant by the death of Mr. Worthen.

While in Lowell, Mr. Colburn prepared and published his work on Algebra. His deep interest in the subject of education led him to take an active part in the care of the public schools of the town; and by his labors, in connection with those of the first minister of Lowell, of whose services we are not now permitted to speak in the terms which they merit, was our present excellent system of public instruction matured and established. A man of great mechanical skill, Mr. Colburn introduced many new improvements and applications of power, by which he rendered important service to the manufacturing interest. Rarely has it happened to any one, by a spirit of the truest benevolence, by peculiar charms of social intercourse, and a manifestation of high moral worth, to leave a deeper impress, not only on the minds of near friends by

whom he was beloved, but in those wider circles in which he had his walk in life. Mr. Colburn died September 13th, 1833.

LUTHER LAWRENCE.

During the eight last years of his life Mr. Lawrence was a citizen of Lowell; and although not directly connected with the manufacturing interest, he exerted an important influence in the growth and prosperity of this place, as a man of great public spirit, as President of the Railroad Bank, and the second Mayor of the city, in which office he died. He was born in Groton, September 28, 1778, graduated at Harvard College in 1801, and entered into successful professional practice in his native town, where he held various offices of honor and trust. In 1831 he removed to Lowell. In 1838 he was elected Mayor of the city, the duties of which office he discharged with great fidelity and success. Soon after his re-election in 1839, his life was suddenly terminated by a fall. By a slight trip of his foot he was precipitated into the wheel pit of a mill, which produced almost instantaneous death, April 17, 1839.

ROBERT MEANS.

To these names of men whom Lowell has occasion to remember with honor and gratitude, we may add the name of Robert Means, the late agent of the Suffolk Manufacturing Company. Mr. Means was born in Amherst, N. H., was graduated at Bowdoin College in 1807, studied law in the office of Hon. Jeremiah Mason, then of Portsmouth, N. H., and was for many years in the practice of his profession in his native town. He removed to Lowell in 1831 to take charge of the Suffolk mills, in which station he remained until the time of his death, September 27, 1842. Mr. Means was a gentleman in the true English sense of that word; and the remembrance of his fine personal appearance, of his courtly manners, and high moral influence, will not soon pass away.

THE END.

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